ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION

DECEMBER 22, 1949

Maze of conveyor belts straddles cascades as concreting begins at Hungry Horse Dam (see p. 30)

RETENTION BASIN ENDS NEED FOR COSTLY STORM SEWERS

7 VITAL SERVICES *in the* "SOUTHERN'S" NEW SHOP *are* BYERS WROUGHT IRON

The largest Diesel Repair Shop on its entire system was recently completed at Chattanooga, Tennessee, by the Southern Railway Company. The Engineering Department has been a long-time, extensive user of wrought iron to combat maintenance in corrosive applications, and followed the same sound practice here. Byers Wrought Iron pipe, in a range of sizes from ½-inch to 8-inch, was installed for underground Diesel oil lines, returns and drip piping, vacuum pump discharge lines, all vent pipe above ground, and all water lines. Some of the pipe was also used in main steam lines.

Practically every major railroad today is faced with the necessity of building entirely new facilities for repairing Diesel locomotives. Here, as in almost all railroad applications, the cost and consequences of any failure goes far beyond the mere expense of the repair, so that dependability and durability is a definite must. In most cases, the individual records of each road will provide ample evidence of the staying qualities of wrought iron pipe —and provide the best possible guide in specification for an enduring, low-cost-per-year installation.

The unusual properties of wrought iron come direct from the unusual character of the material. Tiny threads of glass-like silicate slag distributed through the body of high-purity iron, halt and disperse corrosive attack, and so discourage pitting. The fibers also anchor the initial protective scale, which shields the underlying metal.

If you would like specific information on the suitability of wrought iron for any particular application, one of our representatives will be glad to provide it. For a general picture of the manufacture, characteristics and use of wrought iron, ask for the booklet, THE ABC's OF WROUGHT IRON.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, Salt Lake City, San Francisco. Export Division: New York, N. Y.

CORROSION COSTS YOU MORE THAN WROUGHT IRON

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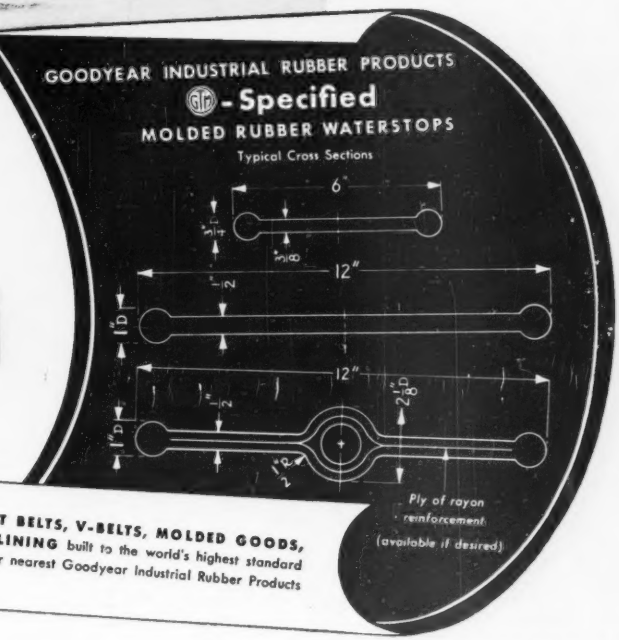
GENUINE WROUGHT IRON
TUBULAR AND HOT ROLLED PRODUCTS
ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

Goodyear Waterstops Seal

Big Missouri River Dam



FOR HOSE, FLAT BELTS, V-BELTS, MOLDED GOODS, PACKING, TANK LINING built to the world's highest standard of quality, phone your nearest Goodyear Industrial Rubber Products Distributor.

MOST recent major dam project using waterstops molded by Goodyear is a huge dam on the Missouri River, part of the flood-control and power project now under way. To date, 45,000 feet—more than 8 miles—of waterstops have been scheduled through Goodyear's molded rubber goods plant. That's nearly ⅔ of all stops on contract for the project.

Reasons for Goodyear's selection as major supplier of these vital seals are:

Goodyear experience in compounding specific formulation of rubber to meet specific job needs, plus Goodyear's ability to maintain consistent high quality throughout production of the item.

Goodyear service—spearheaded by the G.T.M.—Goodyear Technical Man. It includes recommendations on splicing methods, design of splicing molds, and procurement of the molds on order.

Availability—you save time and money when you use Goodyear molded waterstops. Some of the shapes for which facilities are already available are shown in the blueprint. Others can be provided promptly to meet special requirements.

On your next dam job—or anywhere else that you use rubber in any of its forms—it will pay you to consult the G.T.M. *first*. Let him show you how you can do the job better with Goodyear rubber. You can get in touch with the G.T.M. through your nearest Goodyear Industrial Rubber Products Distributor, or by writing Goodyear, Akron 16, Ohio.

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GOODYEAR

THE GREATEST NAME IN RUBBER

"Tag Master"

TAGLINE ADVANTAGES—YOU NEVER HAD BEFORE

1 You can **CAST** a clamshell
2 You can **TWIST** a clamshell
3 You can **SNUB** a clamshell

NOTE FIELD APPLICATIONS

1. **Gravel bed for Dike pump line.** "TAG-MASTER" manual control. Gravel cast over a 25' range without booming or traveling. Considerable time saved; minimum hand spreading.
2. **Picking up rocks.** By **Casting** clamshell without swinging, crane operator reached rocks, set clamshell down with minimum damage.
3. **Digging thru blasted cuts.** Twisting bucket with "TAG-MASTER" control, operator positioned clamshell for picking up long rocks without waste of time. (Could apply to any long object.)
4. **Unloading crushed stone from car.** Ability to **cast** and **twist** enabled operator to reach into corners, minimized hand cleanup. (Could apply to any material in cars.)
5. **Pouring concrete wall.** Swing arc tended to carry bucket away from form. With "TAG-MASTER" control, operator pulled bucket so it followed form as he was swinging.

• ATTENTION •

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Contractors

Seven years of experience prove the TAG-MASTER trouble-free, easy to operate, economical because of
(1) increased operation and
(2) low cost of operation.

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ENGINEERING NEWS-RECORD

VOLUME 143 DECEMBER 22, 1949 NO. 25

WALDO G. BOWMAN
Editor

FEATURES IN THIS ISSUE

Concreting Begins at Hungry Horse Dam 30
Double Gin Pole Hoisting Tower 35
Gantry Forms Build Soap Lake Siphon 36
Retention Basin Reduces Sewer Size ..... Frederick W. Crane 38

DEPARTMENTS

Construction Week 17
Construction Trends 19
Editorials 21
News of the Week 23
Field and Office 44
Developments Abroad 46
Municipal Affairs 49
Men and Jobs 50
Obituaries 52
Education and Research 56
Elections and Activities 58
Unit Prices 60
Construction Reports 65
New Products 103
Reader Comment 112

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ROBERT F. BOGER
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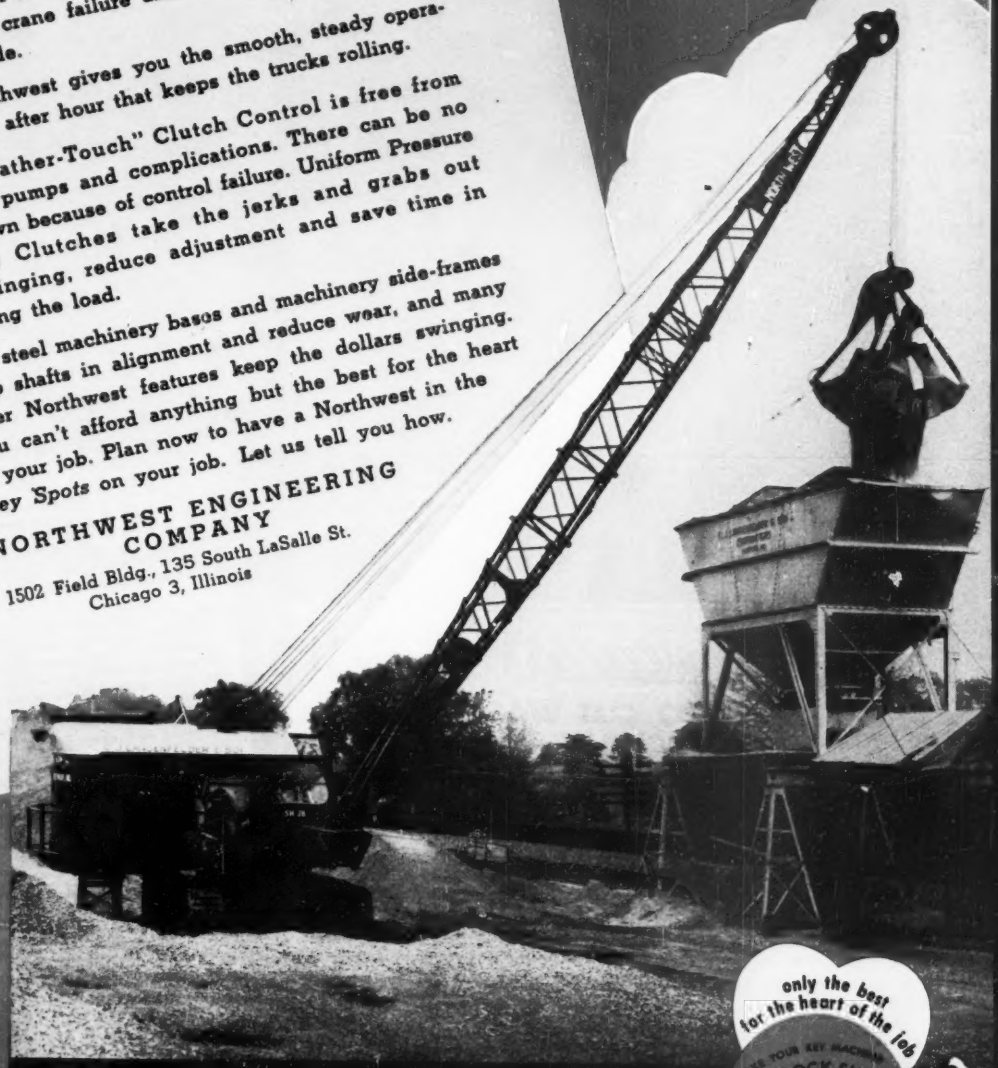

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Huge *one piece* BWH Belt

DESIGNED TO CUT WASTE LINES!

When BWH engineers were called on to produce a fast, power-saving, economical belt for a coal mine, this 13-ton Silver King ROTOCORD BELT was the result. It's one of the largest one piece conveyor belts ever produced. Made by the famous, exclusive BWH ROTOCURE Process of continuous vulcanization, this giant is 1576 feet long, 48 inches wide. It will haul better than 500 tons an hour on a rugged grade at the fast clip of 400 feet per minute. Maintenance worries are lessened by the absence of splices. It's another top performance by BWH . . . leaders for 71 years in the manufacture of mechanical rubber goods of dependable ruggedness for use in all industries.

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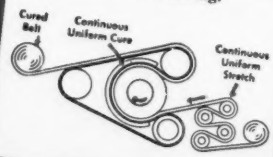
This is the ROTOCURE Process of continuous vulcanization, exclusive with BWH. It does away with the 30 to 40-foot overlaps occurring in the duck carcass in old-fashioned flat-press curing, eliminates the possibility of operational weakness caused by such overcuring.



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NEWS BRIEFS

Peace, It's Wonderful—One part of St. Louis' disputed riverfront memorial to Thomas Jefferson and the early west has been settled amicably—after years of dispute. It concerns disposition of the railroad tracks which run on a trestle between the 40-acre site and the Mississippi River. Plan is to move the 500-ft. steel arch, keynote of the memorial, onto the levee so tracks could run through a 3,000-ft. tunnel following the route of the present trestle. Only National Park Service approval is needed.

Bright New World Dept:—Radiant heating is proving a big success in the floors of the new Aberdeen (Wash.) jail. Prisoners prefer the floors to the bunks. And certain of the establishment's regular customers say the warm floors help kill the aches they once acquired from a night on the town.

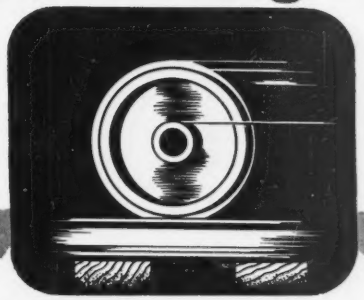
That's Where the Money Goes—All proceeds of the one-cent-per-gallon tax increase on gasoline—effective next month in North Carolina—must go to debt service and amortization of the state's secondary road bonds. That's the opinion of Attorney General Harry McMullan, who adds that regular highway funds will have to be used for the purpose if the gas tax boost alone doesn't cover the charges. The tax, next year, will stand at seven cents per gallon.

Nice for the Duck Hunters—Now that duck season is ended, Winfield Lake, the 31-mi. stretch of Mississippi River between Winfield and Clarkesville, Mo., will disappear for three months. The reason: Repairs on locks at Dam 25, Winfield, will require dropping of the water level to its normal level of a dozen years ago. Even then, divers will be needed to make repairs to four mitre gates. The job will take about 80 days, was caused by "accidental damage" to gates resulting from unskilled towboatmen ramming them.

New Code Coming Up—New York State's Building Code Commission is arranging a series of conferences at which it will seek all available information before promulgating any new code. Chairman Edward J. McGrew, Jr., asked the help of the construction industry in developing a performance code for the industry, which he said is now operating at a $1,250,000,000 pace in New York state.

(Continued on page 9)

Kinnear Rolling Doors



...as fundamental in principle as the wheel

Like the smooth, rolling action of the wheel, the coiling upward action of Kinnear Rolling Doors involves a basis principle of highest operating efficiency. You can change the wheel's "face" in hundreds of ways, but you can't find a better way to do its job. By the same token, the basic advantages of Kinnear Rolling Doors give you the best answer to door needs.

Kinnear's rugged curtain of interlocking metal slats opens straight upward. It coils compactly out of the way above the opening. Floor, wall and even ceiling space remain fully usable at all times. The door clears the opening from jamb to jamb, and from floor to lintel, completely out of traffic's way. When open, it is safe from damage by wind or vehicles. When closed, it presents an all-metal barrier that assures extra protection against storms, intruders, or fire.

In addition, Kinnear Rolling Doors provide smooth, easy operation under all conditions. They may be controlled manually, mechanically (by chain or crank) or electrically. Motor operated doors can be equipped with any number of remote control switches, for highest convenience. Kinnear Rolling Doors are built of various metals, in any size, for easy installation in old or new buildings. Let us send you complete information.

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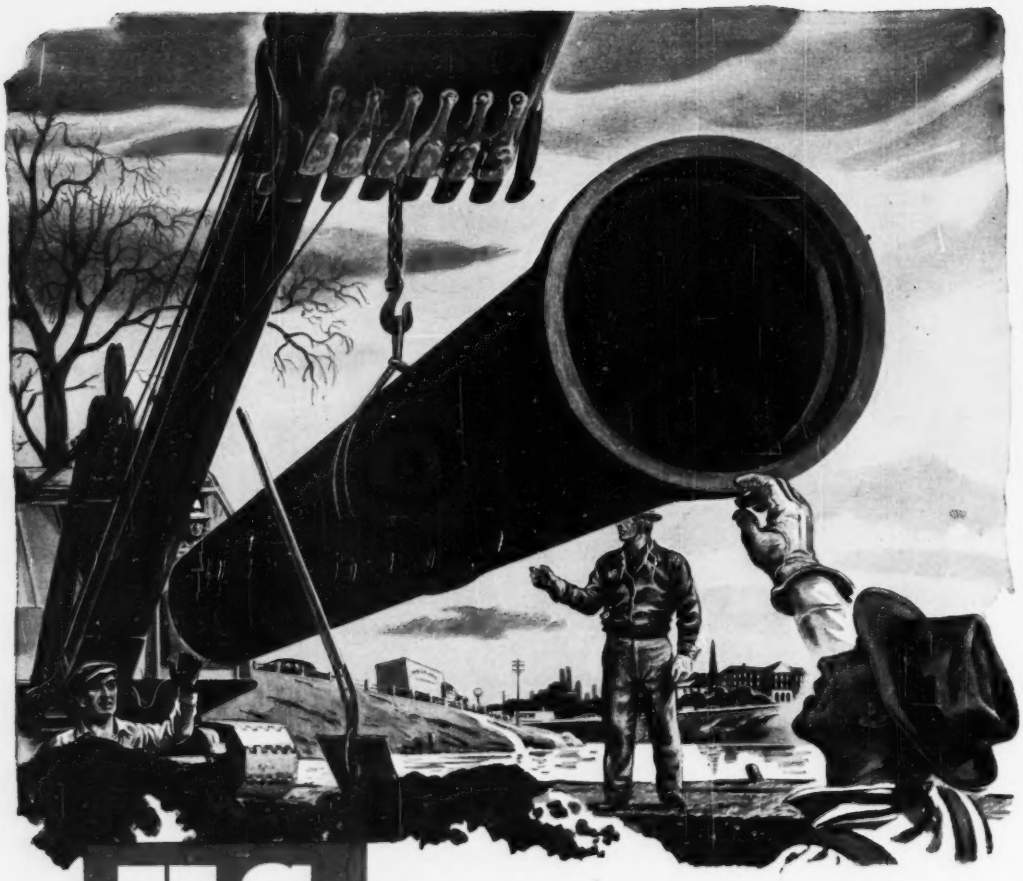


Painted for U. S. Pipe & Foundry Co. by Paul Laune

THE quality of U. S. Cast Iron Pipe is controlled to a degree undreamed of by pipe founders a generation ago. Before the molten metal is poured into the mold of a Super-deLavaud centrifugal casting machine the important characteristics of the iron have been determined by our metallurgists. After the pipe has been cast our plant and research laboratories conduct numerous tests, in addition to acceptance tests, to assure the maintenance of quality in U. S. Pipe. This routine procedure at our several plants is enforced so that *we* may be confident that *your* confidence in our product continues to be justified. **United States Pipe and Foundry Co., General Offices: Burlington, New Jersey, Plants and Sales Offices Throughout U. S. A.**

This Rear-Dump "Euc" meets the demand for a smaller capacity hauling unit for heavy off-the-highway service in mines, quarries, construction, and industrial work. It is engineered and built to the same rigid standards of design and construction as larger Rear-Dump Euclids — job proved for low cost hauling under the toughest operating conditions.

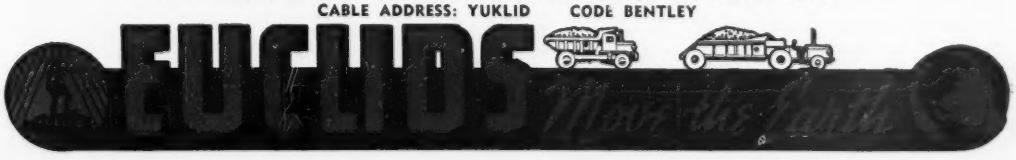
Powered by a 125 h.p. diesel engine, this new Euclid has a top speed with full payload of 35.4 m.p.h. . . . the transmission has ten forward and two reverse speeds. Spring mounted axles permit maximum travel speed on the haul road . . . a form fitting driver's seat mounted on hydraulic shock absorbers assures maximum riding comfort.

The simple design and rugged construction of the 10-ton Rear-Dump Euclid mean long life in heavy duty hauling and assure low maintenance and operating costs that result in greater job profits.

A Euclid Distributor will be glad to discuss your present or future job requirements and show how this 10-ton Rear-Dump Euclid gives trouble-free, efficient performance.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

CABLE ADDRESS: YUKLID CODE BENTLEY



The 200-ft. rolled earth Downsville Dam will stretch across a half-mile-wide valley of the east branch of the Delaware River. View shows core wall under construction by Walsh-Perini, who also have the contract for 25-mile diversion tunnel.

Doing Every Kind of Job

at Downsville Dam

A fleet of GM Diesel-powered Euclids is used at Downsville by Walsh-Perini, and by White Oak Excavators, Inc. on highway relocation.

On big construction projects everywhere, you'll find an ever-growing number of General Motors Diesels taking over more and more of the tough jobs.

Shown here are some of the many different jobs these rugged 2-cycle Diesels are doing on Downsville Dam and the $44 million tunnel to carry water toward New York City. Contractors Walsh Construction Co. and B. Perini and Sons, New York, and others on this project, rely on GM Series 71 Diesels because they start fast, pinch pennies on fuel and stay on their feet with little attention.

If you are interested in dependable power at the lowest cost per horsepower, it will pay you to check the records GM Diesels are making. Write for complete information.

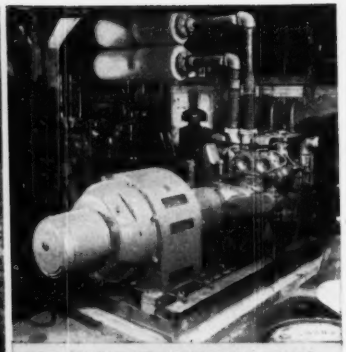
DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES... Up to 200 H.P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS... Up to 800 H.P.

GENERAL MOTORS

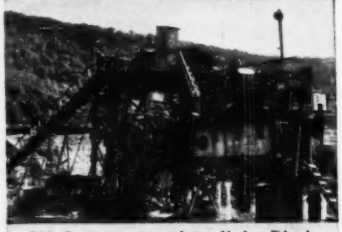
DIESEL BRAWN
WITHOUT THE BULK

GM GENERAL MOTORS DIESEL POWER

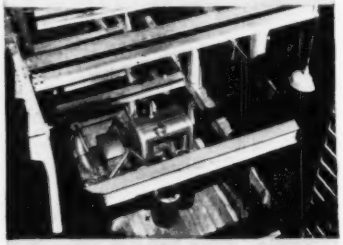


Two GM Diesel Twins drive 200 kw. stand-by electric generators providing emergency power for pumps and compressors.

GM Diesel replaced the original power in this crane, shown placing rock on inlet channel wall.



GM Series 71 2- and 3-cylinder Diesel engines power screens and conveyors on gravel-washing plant of sub-contractor, Cooney Bros.



One of a battery of 12 GM Diesel 3- and 4-cylinder engines used by Walsh-Perini to power water pumps.

(*Continued from page 5*)

What About Next Year?—U. S. Commerce and Labor Departments declare that 1949 is virtually certain of a record number of dollars spent for construction in this country. A joint estimate set the figure at $17,700,000,000 at the end of November—two percent ahead of the comparable figure for 1948.

More Financing Problems—A bond issue is the most feasible method of raising $40,000,000 for farm-to-market roads in Eastern Washington's Columbia Basin reclamation project, spokesmen told the legislature recently. The Reclamation Bureau plans to have water on 87,000 acres in 1952. In Grant County alone, 400 mi. of new roads will be needed to serve every farm scheduled for opening then. The first 100 mi. are estimated at $15,000 per mi. USBR plans two main arterial highways in the county and one turnout per farm.

Short and Sweet—Maryland's legislature faced a one-day special session last week—to correct an error which invalidated a $50,000,000 school construction loan. Cost of the session alone was estimated at $15,000 to $20,000—because a journal clerk made an error in recording final Senate action on the bill at the regular session.

Houston Gets a Drink—Drafting of advance plans and designs for the proposed San Jacinto Reservoir filtration plant has been approved by Houston's city council. Citizens are expected shortly to approve a bond issue for the project, which will cost about $20,000,000, including the dam and reservoir. Houston, which depends solely on ground water for its supply now, is the largest American city with wells as its sole supply source.

Notes on the Air Age—Pennsylvania's using an airplane to determine whether bituminous coal strip miners are complying with the state's Clean Streams law. Experimental aerial patrolling was so successful that weekly survey flights have been ordered. Aerial surveys pay off by saving time and permitting much more complete checks.

No More Dams, Please—Local opposition has developed to an Army Engineer survey of two proposed flood control dams on tributaries of the James River. The proposed structures are Hipes Dam, on Craig Creek between Oriskany and Eagle Rock, and Maury Dam, on the Maury River

(*Continued on page 12*)

VIBER VIBRATORS

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THE specification by engineers and contractors for Viber Vibrators and recommendation by construction men is mounting evidence of their efficient, economical service.

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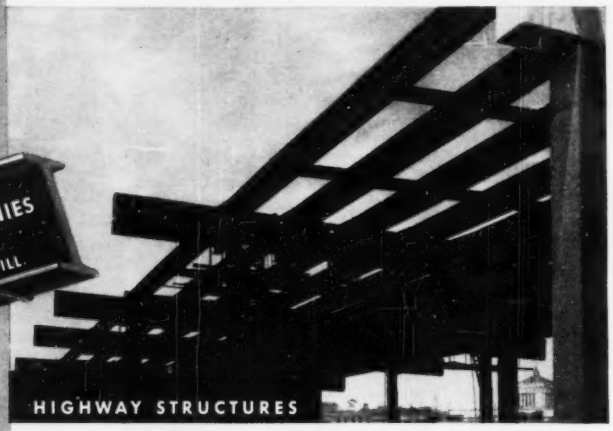
Allied engineers adapt methods to the job, often employing water erection with floating equipment to shorten bridge-building hours.

Similar equipment in each of Allied's three plants speeded up fabrication of structurals for this giant industrial plant.



3250 Tons of steel were fabricated by Allied for this California highway bridge . . . erected according to Allied's precision method.

How 40 TIMKEN® bearings help do a smooth job on the road

THIS Allis-Chalmers AD-4 Motor Grader, built for heavy construction duty, assures long, trouble-free performance with 40 Timken® bearings holding gears and shafts in proper alignment, reducing wear, and helping to prevent breakdowns. Maintenance is easier and cheaper, too.

Timken bearings are made from Timken fine alloy steel—the best ever developed for roller bearings. They normally last the life of the machine. Due to line contact between the rolls and races, Timken bearings have extra load-carrying capacity, even under the toughest loads. Their true rolling motion and incredibly smooth surface finish enable them to operate freely and frictionlessly. Their tapered construction carries any combination of radial and thrust loads.

Because Timken bearings permit tighter closures, lubricants are kept in—dirt and moisture kept out, reducing maintenance man-hours and materials.

No other bearing can give you *all* the advantages you get with Timken bearings. Backed by 50 years of bearing research and development, they're first choice throughout industry. Use them in all the machinery you build—look for them in the machinery you buy. Be sure the trade-mark "Timken" is on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.

A typical application of Timken bearings in **ALLIS-CHALMERS AD-4 MOTOR GRADER** *is shown in this bevel gear power take-off assembly.*

NEW TIMKEN BEARING CUTS RUN-OUT IN HALF!

Until now, the Timken "Zero" bearing has been the last word in bearing accuracy. Now Timken offers industry the "Double-Zero" bearing—*twice as accurate* as the "Zero"! Maximum run-out of the new "Double-Zero" bearing is only 75 millionths of an inch—*half* the 150 millionths run-out of the "Zero" bearing.

What an opportunity for manufacturers of machines where extreme accuracy is essential! Available in standard single row types, up to 10" O.D. Write for further information.

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TAPERED ROLLER BEARINGS

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NOT JUST A BALL ○ NOT JUST A ROLLER ═ THE TIMKEN TAPERED ROLLER ═ BEARING TAKES RADIAL ↓ AND THRUST →○← LOADS OR ANY COMBINATION →✳←

(Continued from page 9)

in Upper Goshen Pass. Representatives of three counties opposed the program at public hearings recently.

Information Wanted—American Institute of Architects has undertaken a year-long study of architectural education, internship and registration. It's part of A.I.A.'s appraisal of its responsibilities in the fields of professional education and licensing.

Honors for a Pioneer—Hawley Sterling, who helped pioneer road construction in Alaska, will be honored by the designation of a new 120-mi. road down the Kenai Peninsula as the "Sterling Highway." The road, which opens some of the most promising land in Alaska to agricultural development, was laid out by Sterling, who started construction of it before his death a year ago.

Fish Get No Choice—Experts agree only that fish in Pacific Northwest streams are taking a beating—they can't agree on what causes it. Alvin Anderson, Washington fisheries director, blames it on dams and drainage practices, says the region will be "kilowatt-happy and fish-poor." Biologist Norman Riddell, says pollution is what's hitting salmon runs.

New Law Needed?—Minneapolis' low-rent housing program seems stalled by a legalism. State law requires a guaranteed gap between public and private housing rentals before federal funds can be had. But the gap can't be attained without the funds.

Concrete She Stands—Buffalo's Municipal Housing Authority chose concrete-frame construction for the seven 12-story units in its Dante Place housing project—and it's sticking by the choice. Steel industry objections were heard but discarded when an engineer assured the authority it could save 8 to 12 percent by using concrete.

B. C. Expands Facilities—Twelve new hospitals—or additions—either under construction or ready to start will add 1,200 hospital beds in British Columbia. And during 1950-51, B. C. school districts will carry out a $12,000,000 construction program. They're adding $6,000,000 worth of buildings this year.

More Water for Dallas—Plans for the first section of a new water purification plant for Dallas, Tex., have been received by the city. First contract for the $5,800,000 plant may be let in January, and the plant should be in operation by the summer of 1951.

It Pays To Do These Jobs The NAYLOR Lightweight Way

Unlike ordinary lightweight pipe, Naylor is built with the Lockseam Spiralweld structure which provides all the benefits of light weight without sacrificing strength or safety. Along with the resulting savings in handling and shipping, Naylor gives you further economies through the exclusive Wedge-lock Coupling which makes pipe connections faster and easier than ever before possible. It will pay you to lighten the job with Naylor lightweight pipe.

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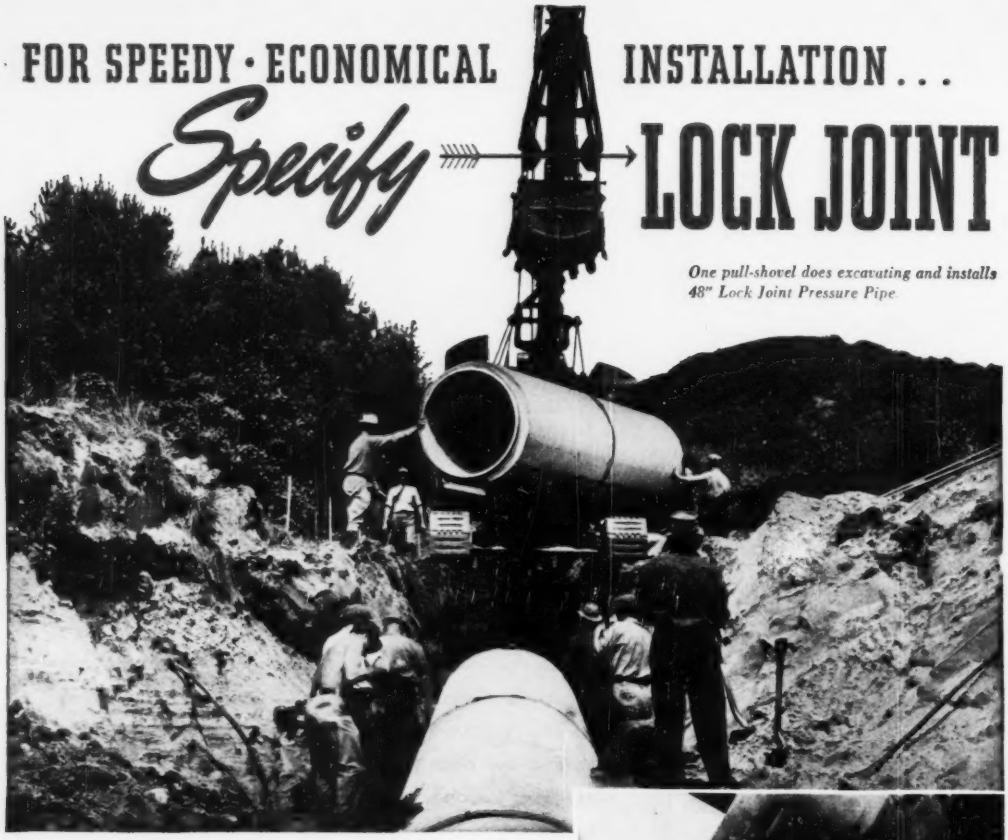
Specify LOCK JOINT

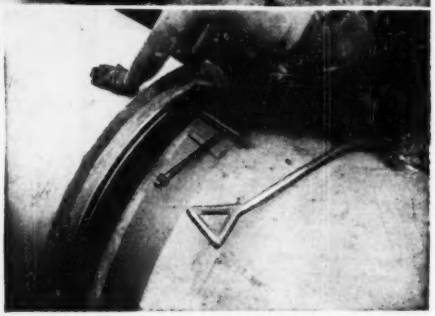


One pull-shovel does excavating and installs 48" Lock Joint Pressure Pipe

• • • With its exclusive Rubber and Steel Joint, Lock Joint Reinforced Concrete Pressure Pipe is installed rapidly and efficiently in extremes of heat or cold—in wet ditch or dry.

Only one machine is required to make the excavation and install the pipe. No caulking or bolting of the joint is necessary, and the pipe may be back-filled immediately. The Rubber and Steel self-centering expansion joint is flexible to accommodate ground settlement, and is watertight at any internal pressures common to American Water Works practice.

Today, millions of feet of Lock Joint Reinforced Concrete Pressure Pipe, equipped with the Rubber and Steel Joint, installed at low cost and needing little or no maintenance, are giving unfailing service throughout the Western hemisphere.



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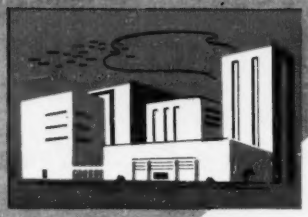
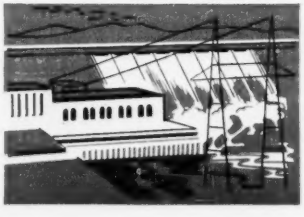
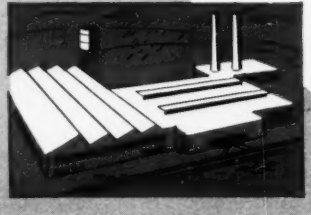
PRESSURE PIPE







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Here's actual operating proof in typical road construction service. This FWD Maintainer is backing into a steep ditch with a load of fill. What's more, it's doing the job, under complete control. Yes — FWDs give you the combined assurance of four-wheel-drive control and smooth, positive braking action. You can be sure of this even before you buy, because FWD Maintainers are scientifically tested at FWD's proving ground to come to a full stop on a 60% dirt grade. *No wonder FWD Trucks are the number one choice of states, counties and municipalities — with individual fleets of over 300 units!*

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THE CONSTRUCTION WEEK

JOB OPEN—The rainmaker who can produce rain for New York City's parched watershed will be a made man—but so far, only one has offered his services. He's a devotee of the silver iodide method of seeding likely clouds (ENR Jan.20, 1949,p.57) and offers all but a guarantee to the city's Department of Water Supply, Gas and Electricity, along with his testimonials and references. The fee is reported high—$100,000 or so for the pledge of doubled rainfall over the next year—and the DWSGE hasn't committed itself.

DEFENSE NETWORK—It's a safe bet that the Army Engineers will handle contract lettings and supervision of construction of the Air Force's $50,000,000 radar defense network, announced last week. (Air Force said it would allocate the $50,000,000 from its fiscal 1950 appropriations to get things started, though Congress has authorized $85,000,000 for the network.) Present plans call for spending $18,800,000 in the U. S., $31,200,000 in Alaska and elsewhere. Most of the sites have already been selected and surveyed. Exact nature of construction work is a top-level secret—but the Department of Defense said that the jobs would be let competitively to private contractors.

AROUND BOYCOTT BAN?—The National Labor Relations Board last week apparently handed the powerful Teamsters' union a new way to get around the secondary boycott ban in the Taft-Hartley law. NLRB said that if the union pickets the truck of a company with which it has a dispute, this is "primary action." Directly picketing a contractor's yard, for example, to discourage deliveries by the trucking company, would be a secondary boycott. Picketing the truck is not, even if it has the effect of discouraging business for the third party.

MORE ROADS, LESS MONEY—Under a new formula adopted by the Ohio Department of Highways, Ohio cities now figure to be able to build more urban roads with less of their own money. The formula works this way: Cities of more than 50,000 will pay only 15 percent of construction and engineering costs of urban highways instead of 25 percent; cities from 30,000 to 50,000 will pay 10 percent; cities of 5,000 to 30,000 will pay 5 percent. (The cities will, however, continue to pay one-third of right-of-way costs, plus costs of relocating utilities.) Reduced percentages are made possible by a $2,844,000 subsidy voted by the state legislature for matching federal-aid funds.

CIVILIAN PANAMA CANAL?—President Truman is going to propose that operation of the Panama Canal be turned over to a civilian agency next year—according to Washington gossip. One object: To set up a new system of tolls that would cut costs for merchant ships, make military ships pay their way. Robbing Johnson to pay Snyder?

NOBODY'S HAPPY—That was a political compromise FHA worked out in its ban on federal financing for homes covered by (racially or religiously) restrictive mortgage covenants. And it pleases no one, apparently. Developers don't like to rely on anything so tenuous as a "gentleman's agreement" about who's going to buy or occupy the housing. Written covenants have no legal standing, after last year's Supreme Court ruling. But even if legally meaningless, written restrictions carry more persuasion, perhaps, than an oral agreement. The minority groups, to the contrary, are unhappy that FHA didn't ban oral agreements too. Already, the National Association for Advancement of Colored People is campaigning for complete non-discrimination.

DELIVERED PRICING COMES BACK—Steel producers are expected to return to delivered pricing whether or not Federal Trade Commission accepts the consent decree the industry has proposed. Under the industry plan, look for:

1. An F.O.B. price offered with a delivered price.
2. Use of different freight books by different steel producers in figuring the delivered price.
3. No previous consultation by steel makers on base prices or extra charges.

FTC's staff is split, on a legalism, as to whether or not to accept the industry's offer of a consent decree embodying these principles. So the expectation is that it'll await appointment of a fifth commissioner before it decides the point.

EXPENSE ACCOUNT—Bureau of Reclamation experts sat down last week to tot up the cost of the face-lifting job their agency has done over the past 47 years. The total was $1,698,391,350. Said the accountants: $3,800,000,000 more will be needed to pay for projects on the planning boards and authorized by Congress.

NOW... A NEW SPECIFICATION THAT GUARANTEES BETTER CONCRETE CONSTRUCTION

SPECIFY REINFORCING BARS THAT MEET ASTM A305

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Be *sure* of the concrete reinforcing bars you buy! Be *sure* they have surface deformations that will provide good bonding strength! You can do this by specifying bars that meet the new American Society for Testing Materials Specification A305. *They cost no more* than ordinary deformed bars.

To meet this new specification, a bar must have ribs which are of a certain minimum height, and spaced no farther apart than 0.7 of the diameter of the bar. In addition, this specification sets forth other deformation requirements—all of which insure improved bonding characteristics.

With the expected early approval of a revision of the building code requirements by the American Concrete Institute, increases in allowable design stresses will permit reinforcing bar users to take advantage of the improved bar designs guaranteed by ASTM A305. These advantages include a saving in steel where bond is the limiting design factor, and a saving in steel, bending costs, and placing costs through the elimination of unnecessary hooks. And a more economical, more efficient, and better appearing structure is assured because of the superior bond between steel and concrete provided by bars with the new deformation patterns. Take advantage, now, of these plus values offered by A305 reinforcing bars. Don't just specify "deformed bars"—specify "reinforcing bars meeting ASTM Specification A305."

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HI-BOND bars not only meet but beat Specification A305!

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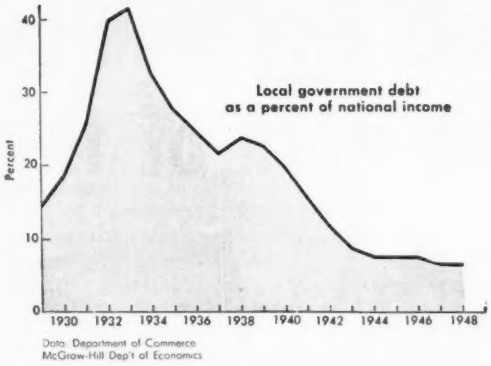
LOCAL GOVERNMENT DEBT LOW COMPARED TO NATIONAL INCOME



Data: Department of Commerce
McGraw-Hill Dep't of Economics

PART 2

CAN STATES AND MUNICIPALITIES FINANCE GROWING VALUE OF CONSTRUCTION?

Can states and municipalities finance the $4 billion or more worth of construction they need—and apparently will put through—each year for the next several years? Over the years, local governments have financed the bulk of their new construction—roughly 80% of it—by borrowing.

Today, the total net debt of state and local governments is nearing the $18 to $20 billion level, an all-time high. Figures on the current position must be rough because of the delay in compiling them. But it is clear that the debt is close to a record, even though the states and municipalities came out of the war with greatly improved finances as a result of high revenues and limited expenses during the war.

The debt figure, though, doesn't tell the whole story. Since 1940, when the total state and local debt was $16.5 billion, the United States' population has grown 14% and the national income, roughly, has trebled.

The war improved debt positions sharply because state and local tax revenues ran high and much construction was suspended. In fact, the average debt per capita of the states and leading cities is now one-fourth lower than it was immediately before the war.

Another method of debt comparison which is widely used by investors who buy state and local government bonds, is this:

Debts of 200 leading cities and counties are now slightly under 5% of the full valuation of the property on which they collect taxes. This median figure (i.e. half the cities and counties are above it and half are below it) is also down about one-fourth from prewar. Compared to the usual investors' rule-of-the-thumb appraisal of the safe limit for borrowing, about 10% of the full valuation, it is very favorable. (Full valuation is the estimated property value in today's dollars. Ordinarily, it runs a little in excess of the property's assessed valuation.)

How much more can the states and municipalities borrow?

WAR'S EFFECT ON DEBT

	Per Capita Debt		*Percent Decrease*
	1941	*1948*	
48 States	$16.59	$11.00	—34%
200 largest cities	92.53	71.77	—22%
75 major metropolitan counties	89.41	67.42	—25%

As the Construction Trend of December 15 showed, state and municipal borrowing next year is likely to increase. How long can it continue at a rate of $3 billion a year or more before it may be expected to bump into the ceiling?

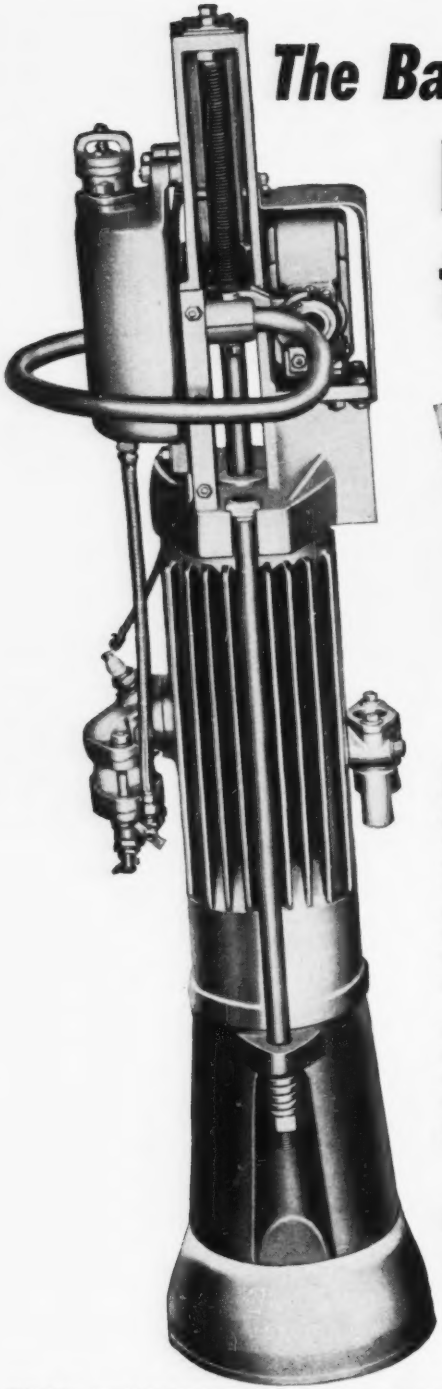
There are at least two ways to estimate it:

1. By the well-established investors' rule-of-the-thumb—that a city's tax-supported debt should be no more than 10% of its full valuation. Local government debt could be doubled in the next few years. Total city, town and county debt is now something over $16 billion. Growing property valuations and low interest rates are factors which are considered favorable to such debt increases.

2. In comparison to the national income, state and local debt is low today. In past years—in 1928 and 1941, for example—when finances were in reasonably good condition, the total of state and local debt has equalled as much as 16% of the national income. However, in 1919 and in 1946—the years right after the two world wars—the total of state and local debt equalled only 8% of the national income.

Along either or both of these lines of reasoning there seems to be plenty of room to expand debt financing. In addition, two things that will be explored in later Trends—the market for state and local bonds, and the growing use of revenue bonds that do not come under city or town debt restrictions—make it clear that there is lots of unused capacity for borrowing by states and municipalities.

By all the signs—in the next five years at least—local governments generally will run into no trouble getting the money to finance the construction their citizens want and are willing to pay for.



The Barco Pegson Rammer

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Barco revolutionizes soil compaction! By actual tests, certified by Government agencies, one man using the new Barco Rammer performed 97% soil compaction with lifts of 12" to 20" refilling ditches as contrasted to the 4" lift obtained by conventional methods. One man doing the work of 5! The Barco Pegson Rammer is entirely self-contained, requires practically no maintenance. Anyone can learn to operate it skillfully and safely after only a few minutes instruction. No lifting, no straining, no carrying. A slight tilt on the handle will "walk" the Rammer where you want it to go.

Especially adapted to tamping close to abutments and other wall structures, and in narrow ditches and hard-to-reach places, where rollers can't reach. Don't tie up your funds in expensive equipment. Let the Rammer cut your costs. For more information write for catalog or demonstration, Barco Manufacturing Company, 1814S Winnemac Avenue, Chicago 40, Illinois. In Canada: The Holden Co., Ltd., Montreal, Canada.

THE BARCO
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FREE ENTERPRISE . . . THE CORNERSTONE OF AMERICAN PROSPERITY

Is That Trip—to Washington—Necessary?

IT'S NO SECRET that the chief worry of municipal officials is money for construction. The public clamors for new schools, more streets, larger hospitals and utility system extensions. Traffic congestion forces consideration of expensive expressways through cities. Water supply and sewage treatment need expansion and improvement.

Where is the money coming from? Mayors and their associates seem to think that the only way out is state and federal assistance. At least that's what about 150 of them concluded at the recent conference of the American Municipal Association, in what is best described as a mass demonstration of the appeal of political expediency.

In the first place can Uncle Sam afford to finance all the work cities think they want and still carry out his vital activities of national defense, foreign policy and world economic rehabilitation? If he does pick up the check, it is still J. Q. Taxpayer who foots the bill whether the funds come from the federal, state, county or local government. And it is certain that if federal funds go to municipalities an unwelcome amount of federal control will go along.

It is difficult to believe that all the possibilities for solving municipal financial problems at the local level have been fully explored and found wanting. There is in this issue for example (p 19) an analysis of local debt structure and of financing prospects that indicates that ample investment money is available and that city credit is good and not overextended. There is the possibility of using revenue bonds. And there is always the chance of making existing tax money go farther by economies in municipal administration.

In this latter connection, the International City Manager's Association has just published a "Check List on How Cities Can Cut Costs." With more than 500 suggestions for saving money and making it go farther, this manual is full of suggestions for the city official who wants to do something about his money worries other than passing them on to Washington.

A Look at the Water Record

WATER SHORTAGES do not come unannounced. Behind each one there is usually a history of disregarded warnings and of engineering planning rewarded only by procrastination. New York City offers the outstanding current example.

Two decades of events (see p. 26) attest to the fact that planning by the city's Board of Water Supply was timely and adequate. They also reveal that approval of proposed projects was so seriously delayed by judicial and financial entanglements that completion of additions for present demand is still at least five years off. First, an injunction that ended in a Supreme Court decree on division of interstate waters delayed construction three years. Spanning from the prosperous predepression Twenties (when ample money would have been available) to the depression year 1931, this court fight left the Delaware system completely stymied by lack of funds. Finally started in 1936, after nine years of delay, the project had, at most, six years of progress when stopped by World War II.

Nine years of postwar construction will complete the job. Nine years of prewar construction, started at the time plans were ready in 1927, might have completed the system before war halted the work.

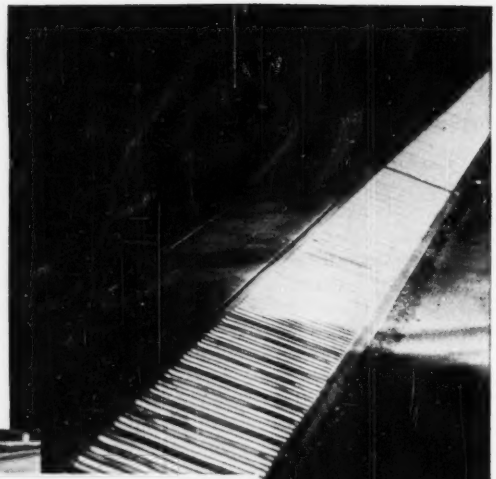
How well New York City has learned its lesson will be indicated by how soon the Board of Water Supply is given a go-ahead on its new program for 1960 needs. BWS stands ready—marking time to see how its plans can be meshed with the soon-to-be-announced tri-state plan being worked out by the Interstate Commission on the Delaware River Basin (Incodel).

To water supply engineers of the city—any city—falls the task of promoting funds today for a project needed *x* years hence. This is no easy task, for the public is hard to convince on projects without obvious, here-and-now advantages. But, if serious situations such as New York's present shortage are to be averted, engineers must not only plan the project, but promote it—foreseeing all possible opposition and eliminating it through argument and education before it can reach the costly, time-consuming stage.

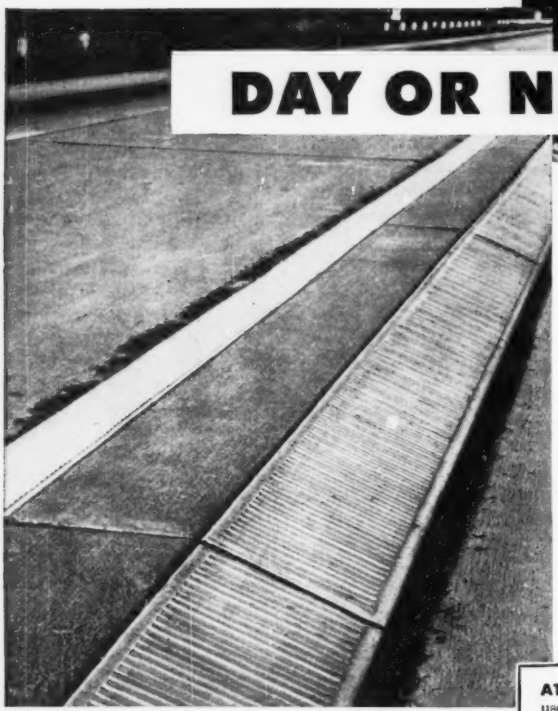
A Better Way

IT WAS INEVITABLE that, as a result of New York City's water shortage, someone in Congress would rediscover the water resources problem. To Senator Irving M. Ives of New York goes the distinction of being the first. And, not to break a long-standing precedent, he proposes a commission to look into the whole question of water supply adequacy. Now that the Senator has let his constituents in New York know that he is on the job, we suggest that he forget the commission idea until he has talked to the people in the U. S. Geological Survey. It is possible that he will find quite a lot of data already on hand and an organization already set up to collect more—but no money to do it with. If pressed, the USGS will probably admit that it is Congressmen—of all people—who have frequently turned down requests for funds on the ground that collecting water resource data was a luxury that could be dispensed with or postponed. By this time a better way to increase our water resources knowledge than by appointing a commission may occur to the Senator.

NOW...
greater driving safety with ATLAS WHITE REFLECTING CURB



DAY OR NIGHT



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AT NO EXTRA COST—For curbs and other white concrete uses, all the advantages of air-entraining portland cement—increased plasticity; easy placement; higher resistance to effects of freezing-thawing weather and scaling action of de-icing salts; greater durability;—now available. Ask about

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ENGINEERING NEWS-RECORD

DECEMBER 22, 1949 VOL. 143 NO. 24

Protection without election, contractors plea to NLRB

Labor Board takes request under advisement after hearing at Washington this week—Denham suggests three-point plan for handling union shop impasse

Joseph M. Gambatese
Washington Staff

The National Labor Relations Board has under advisement this week a strong plea that union shop elections for the construction industry be dispensed with.

The plea came after a public hearing Dec. 19 at which industry leaders and NLRB discussed at great length problems arising out of the inability to hold such elections—as required by the Taft-Hartley Act—for construction workers (ENR Dec. 15, p. 17, Nov. 3, p. 15).

Major argument for waiving the elections came from the board's own general counsel, Robert N. Denham. He asked the board to adopt a three-point plan for protecting the rights of contractors and unions in the absence of elections.

The Associated General Contractors, the AFL Building Trades Dept. and other contractor associations parties to the National Joint Board for settling jurisdictional disputes participated in the hearing.

Incidental to the major problems resulting from the absence of either representation or union shop elections under the Taft-Hartley law, these groups took the position that the holding of elections in the construction industry would undermine the effectiveness of the jurisdictional disputes board. They did not request that elections be held. Instead, they preferred that the elections be waived, while at the same time giving contractors and unions the same protection they would have with elections.

Machinists want elections

The International Association of Machinists, unaffiliated, urged that NLRB comply with the election requirements of Taft-Hartley until the law is changed. This union does not participate in the jurisdictional disputes joint board and on some jobs competes with AFL unions.

In fact, it was because of a case involving the rights of a member of the Machinists Union, working under a contract held by the AFL International Union of Operating Engineers, that NLRB held the public hearing this week on this case and the entire industry problem.

Actually, the specific case, involving Guy F. Atkinson Co. and J. A. Jones Construction Co., a joint venture, concerns the legality of the traditional industry practice of agreeing to hire union members before a job is begun. Elections were not an issue.

The legality of a contract made with a union before it represents any employes of the contractor arises under the Taft-Hartley law simply because NLRB did not assert its jurisdiction over the industry under the Wagner Act. Now that NLRB has taken jurisdiction over the industry, the question of legality of this practice becomes of prime importance.

Following custom, Atkinson and Jones held a pre-job conference with the Operating Engineers and signed a contract Aug. 16, 1947. The union was party to an area-wide agreement with the Spokane chapter of the Associated General Contractors. The companies had contracted to build housing facilities for future employes of General Electric Co. at the Hanford Atomic Works, Richland, Wash., and to build a construction camp.

Closed shop OK then

The agreement included a closed shop, which is now illegal. At that time, however, it was permissible to sign a closed shop before Taft-Hartley became effective Aug. 22, but it would be good for only a year.

A member of the Machinists Union was hired in October on a work permit issued by the Operating Engineers. In February, he was dismissed at the union's request for failure to pay dues. The man, Chester R. Hewes, filed un-

Second-low bid gets bus terminal award

In a move predicated on the necessity for guaranteeing a completion date, the Port of New York Authority awarded a $9,194,759 contract last week for its new bus terminal to the second-lowest of ten bidders.

The contract was for the superstructure, exclusive of steel framework, of the huge terminal in midtown Manhattan. The terminal eventually will handle 1,500 busses per hour and hundreds of thousands of passengers daily (ENR Dec. 1, p. 23).

Recipient of the contract award was the Turner Construction Co., New York City, whose bid was $256,142 higher than that of the low bidder—Merritt-Chapman & Scott Corp., also of New York. The eight other bidders—all New York firms—ranged up to a high of $10,722,359. See also p. 29, this issue.)

In a statement explaining the award, the Port Authority emphasized that the structure's completion date (Nov. 1, 1950) is extremely important because it would effect the date on which bus companies terminate existing leases on terminals now in use, and also training programs for authority and bus company personnel.

Howard S. Cullman, Authority chairman, said that a "unanimous recommendation" of the Authority's six-man Board of Engineering Consultants (John C. Evans, chairman; William H. Mueser, George Burpee, Ernest Johnson, Max H. Foley and C. S. Gleim) urged the award to the second bidder because of "the wide experience of the Turner company in the erection with their own forces of large buildings in New York City, and their established relations with the New York building trades."

Unofficial sources indicated that the fact that Turner is prepared to do much of the primary work, such as brick and concrete work, with its own forces, while Merritt-Chapman & Scott planned to subcontract much of this work, weighed in favor of Turner.

Merritt-Chapman & Scott officials said only that they were prepared to guarantee meeting the completion date, and that the company has a record of amiable relations with labor unions.

MEMPHIS BRIDGE OPENS—After considerable controversy about whether to hold a big celebration for their new Mississippi River Bridge, citizens of Memphis settled for a parade across the new structure and back, then opened it to traffic Dec. 17. The $13,500,000 structure, (ENR Aug. 18, p. 32), is the third bridge across the Mississippi at Memphis. (Wide World Photo.)

fair practice charges against the contractors. Nub of the charges was that the contract, particularly the closed shop section, was illegal because the union did not represent any employes when it was made. The Wagner Act permitted a closed shop contract with a union representing a majority of the employes.

The charges were upheld by a trial examiner.

At this week's hearing, the contractors defended the contract and the dismissal on the ground that the contract was legal when it was entered into, NLRB not yet having asserted jurisdiction over the industry. They also pleaded the exigencies of the situation and the need for recruiting workers quickly for the important atomic energy construction.

Construction employes in "pool"

The Operating Engineers, though not parties to the dispute, appeared before NLRB to defend their contract. They argued that under the area-wide agreement with the AGC chapter, there existed a "pool" of skilled workers who technically were employes of any contractors doing work in the area.

Observers feel that employer-employe relations in the industry will be seriously upset if NLRB holds that Atkinson and Jones could not legally enter into a contract with the Operating Engineers before the workers covered were actually on the job and expressed a desire to be represented by that union.

After reviewing the fluid nature of employer-employe relations in the construction industry, which prevents the holding of elections, Denham suggested that the board adopt this plan:

When NLRB receives a charge of unfair labor practice against a contractor or building trades union, based on the application of a union shop contract that has not been authorized by an election under Taft-Hartley, the board should:

1. Deem the union shop authorization requirements of Section 8 (A) (3) and 9 (E) to have been met, despite the fact that no election has been held, until such time as the board sets up election machinery in the industry.

2. Consider that the 30-day provision of Section 8(A) (3) has been met if the worker has been employed for at least 30 days by one or more contractors in the group covered by the union contract. (This refers to the rule that a valid union shop contract may require a worker to join the union 30 days after he is employed as a condition of keeping his job.)

3. Handle in normal fashion all cases which, despite the considerations allowed in Points 1 and 2, involve unfair labor practices under Taft-Hartley.

What this boils down to is that contractors and building trades unions could do only what is allowable under a valid union shop contract, but no more. The closed shop, for instance, is illegal.

OK's union shop equivalent

The union shop permits freedom to hire, without discrimination, with the condition that the employe join the union after 30 days. The closed shop requires union membership before hiring, the hiring usually being done through the union.

It is contemplated that the industry and building trades unions will be able to continue traditional hiring practices, with a virtual closed shop, in this way:

Union members in an area will be considered employes of all the contractors who are parties to the union agreement. They will have to maintain membership in the union to keep on working. When they are not working, they will remain in a labor pool from which the contractors will hire when men are needed. When a nonunion worker applies for a job while union men are available, he will be rejected in favor of the union man on the ground that the latter already is an employe of the contractor.

Whether this arrangement will stand up under the law is uncertain.

While the Denham plan covers only union shop elections, his discussion of the situation also covered the problem of representation polls.

Elections not wanted

The industry—meaning the contractor spokesmen and the AFL building trades unions—do not want the board to hold representation elections even if they were possible.

Permitting such elections, it is argued, would kill the joint board for settling jurisdictional disputes because the joint board could not then control the assignment of work. Other unions not parties to the joint board plan could petition for bargaining rights on a job where the joint board already may have assigned work to another union.

Denham said at the hearing that he has been unable to conduct elections in the industry because of its "unique employment relationships, bargaining patterns and traditions."

He cited the instability of employment, with the craftsman usually working only sporadically for one employer and only for a few days at a time.

The building trades unions, he said, represent "considerably more" than a majority of the construction workers in the country, and most of the contractors bargain with the unions.

Some types of union security have been traditional in the industry as a means of insuring stability of labor supply, Denham pointed out.

He recognized that a "sizable number" of contractors operate on an open shop basis, but said they constitute only a minor part of the industry.

Assumes union shop validity

Denham recognized, further, that a study of the union security traditions in the unionized sections of the industry and the board's experience in holding union shop elections in other industries warrants the conclusion that, in organized sections of the industry, the workers would vote overwhelmingly to authorize the union shop if elections were held. (In other industries, workers have authorized the union shop in more than 9 out of 10 elections.)

The construction industry should not be denied the right to union security contracts because of the inability of NLRB to hold the necessary elections, Denham said.

He made clear that his proposal for waiving elections did not apply to situations in the industry where employment is sufficiently stable to permit the holding of elections.

See "substantial" gains against Ohio pollution

First-year accomplishments of the Ohio River Valley Water Sanitation Commission were "substantial," Chairman Joseph L. Quinn has reported to the governors of eight participating states.

Among other things, the commission established standards for the 22-mi. stretch of river known as the Cincinnati pool. Based on this information, Cincinnati and northern Kentucky cities discharging into the pool are proceeding with design work.

Findings of fact were made on water requirements for the Pittsburgh and Huntington areas. These should expedite remedial work in each area. Action was taken to prevent new discharges of hardness-producing wastes from industrial plants. Factual evidence was obtained on Wabash River pollution loads.

With the Armco Steel Corp., the Wallace & Tiernan Co., and Ohio, the commission undertook a cooperative program aimed at curbing phenol wastes. It helped Ohio and Kentucky on new pollution legislation and engaged in other consultative activities with public officials.

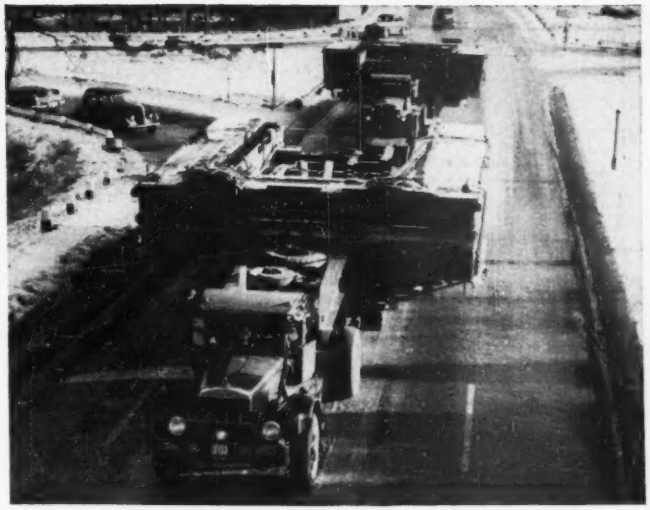
"With the cooperation we are getting from the signatory states, from major municipalities and from important industries," Quinn asserted, "we feel confident that clean water for the Ohio valley is a growing reality."

Massachusetts seeks rule on contract approvals

Massachusetts' attorney general has before him the case of a $1,585,513 bid which was approved by Boston's Metropolitan District Commission but rejected by the governor and executive council.

M. DeMatteo Construction Co., Quincy, was low bidder on a contract to furnish and install 31,000 ft. of 48-in. water piping and appurtenances in the Blue Hills section of Dorchester. After approval by MDC, the bid was turned over to Gov. Dever and the executive council, which disapproved it. Massachusetts law requires that manufacturers in the state be given preference in supplying material and machinery for such jobs, other things being equal. No reasons were given for the executive council's disapproval. Further action awaits a legal opinion as to the necessity of executive council approval.

DeMatteo spokesmen said the specifications did not require that pipe for the job be purchased within Massachusetts.



TWO TRUCKS, ONE DREDGE—A 60-ton dredge was moved last week from Braintree, Mass., to Lakeport, N. H. The dredge had to be cut in half and moved on two large trailers. A third truck carried the deckhouse and machinery. (Wide World Photo.)

NSPE wants an engineer to run Point 4

Recommending that a qualified engineer be appointed to head any plan to implement President Truman's Point 4 program, the National Society of Professional Engineers closed a four-day convention at Houston, Tex., Dec. 10.

During the meeting, the group presented an honorary scroll to a representative of former President Herbert Hoover for his "services to mankind."

The Point 4 recommendation, submitted by the organization's legislative committee, noted that Congress may act next year to implement the President's plan to export U. S. know-how to undeveloped areas of the world.

In accordance with a bill presented to Congress in the last session but never acted upon, the group urged that an Institute of International Technical Cooperation be established. The NSPE recommended that the head of this institute should be "either a highly qualified engineer or one who is experienced in administration of programs and projects involving large engineering aspects." It also recommended that there be an advisory body which should include adequate engineering representation. Strongest recommendation was that any program such as the President's Point 4 should be carried out "with the fullest utilization of the services of private agencies and persons."

A second legislative recommendation concerned a matter long battled over by the organization. This was the proposed extension of the federal social security law—a revised version of which was passed by the House in its last session and action on which is expected by the Senate. Of major interest is the provision to extend the social security system to the self-employed.

Although the group has long favored this move, it suggested that self-employed engineers be exempted from coverage on the same basis as are doctors and lawyers.

Tampa begins sewer job to cost $13,000,000

Realization of a 20-year dream began last week in Tampa, Fla., when work started on a $13,000,000 master sanitary sewer system. The job is expected to require two years.

Work was started by the Stansfield Construction Co., holder of a $385,201 contract. Nine other contract holders were to begin work shortly thereafter. Contracts already awarded cover the first three stages of the work—which will cover the city with sewers and provide a modern disposal plant, also.

The job will be financed through the sale of revenue certificates which sold at a 3.24 percent interest rate.

PERSPECTIVE . . .

Water shortages don't just happen

New York City is in trouble on water supply. But it's not as a result of this year's rain deficit—causes go back nearly three decades.

1927—On July 27, the Board of Water Supply (established in 1905 as planning and construction agency for additions, which when completed go to the Department of Water Supply, Gas and Electricity for operation and maintenance) gave the city's Board of Estimate and Apportionment a plan for development of the Delaware supply system. This plan resulted from a six-year study.

1928—After 5½ months, the BWS plan was approved by the Board of Estimate and Apportionment. Seven days later BWS asked the State Water Power and Control Commission for approval.

1928—On May 13, the state of New Jersey started action in United States Supreme Court to prevent New York City from diverting any waters of Delaware River tributaries.

1929—New York State's Water Power and Control Commission came through with its sanction—one year and four months after it was asked—but by this time New Jersey's petition for injunction had halted all headway.

1931—Two years after litigation began, the Supreme Court—on May 25—issued its decree: New Jersey's request of complete injunction was denied; New York was awarded rights to draw 440 mgd. from the Delaware watershed.

Now, after nearly four years of approval seeking, BWS had the go-ahead from all concerned.

But, the delays had had their telling effect. By this time, the depression had covered the country like a blanket, and New York City's chances of selling long-term revenue bonds were nil.

PWA loans and grants kept BWS in business through 1933-34, but on city tunnels to deliver existing supplies, not on that much-needed Delaware supply.

The same depression that cast so dark a shadow on BWS had its poetic silver lining: business and industry were so hard hit that water consumption dropped off at the rate of 6½ mgd. each year all through the 30's. But for this saving grace of the depression to deflect the city's straight-line consumption growth, today's desperate situation might have hit New York back around 1935.

To get back to the chronology: When final approval was given the Delaware scheme, the depression stalled all progress. Finally in—

J. Waldo Smith, then chief engineer of the Board of Water Supply, said on Oct. 25, 1925:

"Provision of a sufficient supply of water . . . will constitute an ever present problem just as long as the city continues to grow. . . One additional water supply has followed another—the new being begun before the previous one has been entirely completed. . . And so it is certain that before the Catskill work is entirely completed there will be need for serious consideration as to the direction in which the city should turn for the next increment to its supply. THIS IS ESPECIALLY TRUE AS MANY YEARS OF ACTIVE AGITATION ARE REQUIRED BEFORE ANY IMPROVEMENT OF THIS NATURE CAN BE UNDERTAKEN AND THE WORK OF CONSTRUCTION ACTUALLY BEGUN."

1936—The first authorization of funds was made June 5 for shaft construction and preliminary work costing $17,500,000. It was nine years after BWS had submitted complete plans for approval. Three years of litigation plus six depression years—nine years spent and not a shovelful of earth turned on a project originally estimated to be 20 years in construction.

The 85-mile Delaware Aqueduct was pushed through to completion (without permanent operating equipment) between '36 and the war. And work began on Merriman Dam of Rondout Reservoir.

Progress was too good to last—and didn't. War preparedness caused a construction slowdown in '40, and by '41 the slowdown became a shutdown. BWS had priorities, but no equipment.

1944—Without benefit of Merriman Dam to retain its flood flow, BWS diverted Rondout Creek in April to Shaft 1 of the Delaware Aqueduct. Since then the city has benefited by a fairly steady flow averaging between 90 and 100 mgd. from Rondout. With the dam, Rondout is figured for 100 mgd., but is good for 127 mgd.

1946—Postwar construction started April 6 and is now going strong on all three Delaware system dams—Merriman, Neversink and Downsville. Rolled earth for Downsville is the only major contract still to be signed. Filling of Rondout Reservoir will start in '50 (with little effect on supply, as noted above); Neversink completion is set for 1952 and figured for 105 mgd.; Pepacton, behind Downsville Dam, will yield 335 mgd. when filled in '55. Diversion tunnels, five miles and 25 miles, under the divide from Neversink and Pepacton respectively to Rondout, are controlling factors on completion dates. Pepacton just might be tied into the system by late 1954.

But even these additions, with their 440 mgd., are not enough. BWS knew this when it planned the Delaware system and tacked a Stage 3 onto the two stages including work described above. Back in 1927, BWS described Stage 3 as "reservoirs on the Little Delaware River, the Beaver Kill and the Willowemoc Creek. . . constructed together with the necessary connecting tunnels." These reservoirs were to be just beyond (northwest of) the farthest of the present three. Though subsequently revised, this plan, in general, is still good.

1947—BWS told the Board of Estimate on Dec. 2 that the city's demand was 145 mgd. over dependable supply, and only abnormally high rainfall had averted serious shortage. Such luck could not hold, said BWS, "unless immediate steps are taken to conserve the present supply" and to improve present facilities for delivery. Also, said the BWS letter to the Mayor (chairman of the Board of Estimate), "new water . . . which might be used in the present emergency should . . . be given serious and immediate consideration."

The sum of $300,000 was asked by Dept. of W.S.G.&E. for studies of facilities for delivery; it was not

granted. The "present emergency" grew from then (Dec. 2, 1947) until now, and New York's only emergency source—100 mgd. from the Hudson River where the Delaware Aqueduct passes beneath it about 10 miles below Poughkeepsie—would be one year in preparation, even with most lenient State Health Department rules on treatment and immediate equipment availability.

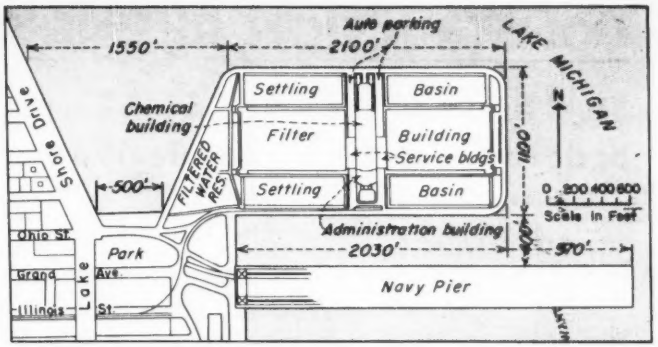
The Dec. 2, 1947, letter to the Mayor did help create an important BWS adjunct: the New Sources Division. Reporting to a board of consultants appointed by BWS, this division has new sources planned, for even with the present Delaware additions in service, demand again will surpass supply in 1960. The all-star board of consultants advising on new sources includes: Roger Armstrong, ex-chief engineer of BWS; Tobias Hochlerner, ex-chief engineer of the Department of Water Supply, Gas and Electricity; Russell Suter, ex-executive engineer and secretary of the State Water Power and Control Commission; and John M. Fitzgerald, chief engineer of BWS.

1948—On Dec. 30 a technical subcommittee of the Interstate Commission on the Delaware River Basin (Incodel) recommended that Incodel sponsor a bill before New York, New Jersey and Pennsylvania legislatures promoting a two-year, $200,000 study of an integrated project in the Upper Delaware Basin. Incodel got two years' funds from Pennsylvania and a year allotment from the other states.

Malcolm Pirnie Engineers, New York City, and Albright & Friel, Inc., Philadelphia, are working for Incodel; they have a preliminary plan pretty well along and will use it in asking for next year's funds from New York and New Jersey.

1949—As of this week, New York is 8 inches of rainfall behind. Odds are 5 to 1 against full ponds next June. Full relief is five years off, and then will be only temporary.

1950?—Next year Incodel's specific plan should become known. BWS Commissioner Irving V. A. Huie then will announce his own next move to prevent recurrence in '60 of today's troubles. What's done in '50 will shape the situation years hence, just as action—or lack of it—back in the '20's caused the present shortage.



CHICAGO BOLSTERS WATER SUPPLY—Approval of shore-front site on Lake Michigan finds . . .

World's largest water plant ok'd

Construction of the North-Central water-filtration plant will be started soon as a result of Chicago City Council's approval of the Lake Michigan site, just north of the Navy Pier (see map). This 950-mgd. facility will be by far the world's largest water-treatment plant—more than three times the size of Chicago's South District project.

Cost of the plant has been estimated at about $73-million (today's prices) by the consulting engineers, L. R. Howson and S. A. Greeley. It will be financed by sale of water certificates, permission for a $50-million sale having been granted by the Illinois state legislature. It is expected that the legislature will approve additional sums needed for completion.

Some $800,000 is already available for the work. This will probably be expended for a comprehensive soil survey and perhaps a cofferdam beginning.

The NC plant will be designed to serve a total 1970 population of 2,970,000.

Treatment to be provided

Water treatment will consist of quick mix, flocculation, settling and filtration. Major bases of design for the first three phases of treatment will be:

Basin	Displacement Period in minutes, based on maximum 24-hr. quantity of water	Basin Capacity mg.
Quick Mix..	2	1.3
Flocculating..	30	19.7
Settling	180	128.7

Filters will be designed on the conventional rate of 2 gpm. per sq. ft. of surface area. Provision will be made, however, for operation at rates as high as 3.5. This decision was based on the fact that a 3.0 gpm. rate would have reduced costs only six percent. Also definite advantages accrue from the lower operating rate, according to the consulting engineers.

Storage capacity needed for filtered water is estimated at 95 mg. Of this amount, 56 mg. will be provided at the filter plant and the remainder in a surface reservoir either on the distribution system or adjacent to the plant.

Facilities will be included to handle the large amount of chemicals needed for treatment. This is estimated at 72 tons per day.

Project contracts will probably be let as follows: Cofferdam, tunnels, clear-water reservoir, sub-structures for filters and settling basins, sub-structures for chemical building and pumping stations, filter equipment, pumps and piping, super-structures for chemical building and pumping stations, motors and wiring and chemical equipment.

Permits for construction are yet to be granted by the U. S. Engineers and the State of Illinois. It is expected, however, that these will be granted without delay.

Canadian highway financed

The Canadian Government's first non-emergency contribution to the cost of provincial highway construction has been approved. Under it, Parliament has authorized a $150 million grant for a two-lane, surfaced Trans-Canada highway. Each province is to contribute a like amount. A conference to determine the route and technical aspects of the job was to be held by the federal and provincial governments soon after the act was passed.

CONSTRUCTION BUSINESS

Steel bars and shapes up $2-$3 a ton; basic materials higher in late-1949

The United States Steel Corp. on Dec. 15 raised prices of structural steel shapes by $3 a ton, plus extras of $1.50, to a new base price of $68 a ton in Pittsburgh, Birmingham and Geneva, Utah. At West Coast mills, the new price for standard shapes is $80 a ton. Bars and small shapes in Birmingham are $69 a ton, also the Pittsburgh price. Reinforcing bars at Big Steel's West Coast mills are $83 a ton.

Sheet piling is up $3 a ton to $84 a ton, Pittsburgh; bearing piles are up to $68 a ton; and standard tee rails to $68. Plates are up $2, to $70 a ton, at Pittsburgh, Geneva and Birmingham, plus extras of $2, and corrugated galvanized culvert sheets are up $6 a ton including new extras. Pipe and tubing are $5 to $8 higher, according to National Tube Co. quotations, plus additional extras.

This 5 percent increase in prices of structural steel shapes to $3.40 per cwt. (Pittsburgh, Chicago, Birmingham) is the first rise since abandonment of the basing point system in July 1948, when rates were raised 18½ percent to $3.25 per cwt. It follows and accentuates the recent small but gradual uptrend in materials costs in late-1949. Lumber and cement have been creeping up for 2 or 3 months.

The materials cost component of ENGINEERING NEWS-RECORD's Construction Cost Index, now 188.47 including the steel increase, was low for the year at 184.18 in September, just prior to the lumber recovery. Lumber, since then has climbed from the $78.34 per Mbf low, to as high as $79.09, based on the average of 2x4 pine and Douglas fir prices in 20 major U. S. cities. The present lumber average is $78.78 per Mbf.

Cement started to climb in October. To date, 20 cities-average prices have been upped 2 cents per bbl., to $2.96 from the October low of $2.94. Postwar high for cement was $2.99 per bbl., in May of this year.

Construction nearer for iron range job in Labrador

To test further the possibilities of a $150-to-$200 million iron range development in Labrador and Ungava (ENR Sept. 9, 1948, p. 6) members of the Labrador Mining and Exploration Co. at Montreal, on December 9, committed themselves to spend another $5 million during 1950-51. This is the first half of a four-year program, and is mainly exploratory, development and engineering work necessary before starting the construction expected to begin within a year or two.

The end of 1953 is the deadline for taking up options and leases for full development of the range, which may become one of the most important mining ventures in the world. Also, this is the ore supply that may lead to construction of the much discussed steel mill in New England, now proposed for the New London area, or to the St. Lawrence Seaway.

Construction, the second half of the 4-year test program, would include a 360-mile railroad from the mines to Seven Islands on the St. Lawrence River, terminal and port facilities at Seven Islands, the development of the mining properties, electrical power development, and building the communities required for the eventual production and transportation of 10 million tons of iron ore a year.

A new Canadian company, Hollinger-Hanna, Ltd., will manage operations, and an American firm, Iron Ore Company of Canada will finance it. The participating steel companies in the U. S. are Republic, Armco, National, Wheeling, Youngstown Sheet & Tube and Hanna Coal and Oil Corp.

Electric utility spending at 1949 rate to continue

Electric utility industry spending for new plant and equipment, about to hit a new high of $2,445 million for 1949, will approach the same record figure next year.

These estimates are based upon preliminary data compiled by ELECTRICAL WORLD for its annual survey of new construction and capital expenditures. Data, from reports to EW by companies and municipal utilities representing 60% of the industry, indicate an outlay of $2,283 million in 1950.

But subsequent reports, as yet uncompiled, indicate even heavier spending next year by the remaining 40% of the industry. Inclusion of these figures probably will raise capital expenditures of the industry to more than $2.3 billion for 1950.

Prefab house output gains

Manufacturers of wood prefabricated houses this year will ship 35,000 units as compared with 30,000 last year. The estimate for 1949 is based on reports for the first 10 months from 85 companies.

Three or four producers who fabricate metal houses are expected to turn out about 2,500 units by the end of the twelve months.

Among the wood house manufacturers, shipments per company during the year range from 25 to more than 4,000. Eighteen companies are shipping more than 500 houses each. Of that group, one will exceed 4,000; another, 3,000, and a third, 2,000 units.

Nearly all the manufacturers are placing the bulk of their production in the economy-house market. These houses are largely two- and three-bedroom dwellings that sell for well under $10,000. Finished house, without lot, is generally $7,000.

Paving awards 27% over '48

Portland cement concrete paving awards in November were 27 percent higher than a year ago at 3,195,279 sq. yd. for the month, according to the Portland Cement Association.

Streets and alleys paved were the biggest item of the period, at 1,744,178 sq. yd. up 166 percent from the comparable 1948 figure. Roads at 922,636 sq. yd. were the second largest item, but down 44 percent. And airport pavement work of 498,465 sq. yd. was above November 1948 by 137 percent.

For the first 11 months of 1949 concrete paving volume stands at 43,071,753 sq. yd. an increase of 1.4 percent over the comparable 1948 total.

Public and private housing both figure in 1949 boom

Privately and publicly financed housing have both contributed to the increased volume in 1949 compared with 1948. An 11-month total of 902,600 privately financed units started thus far in 1949 is about 5 percent greater than last year's January-November total. Publicly financed units, sponsored largely by state and local governments, totaled 34,500 during the 11 months, as against 14,300 in the same period last year.

A moderate drop of 10 percent below October in November's urban building permits, indicates housing starts for December, though due to decline, will remain unseasonally high.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 65, went to press.)

College Buildings—Pennsylvania General State Authority, Harrisburg, Pa., plans constructing college buildings to cost $14,000,000 at Pennsylvania State College, State College, Pa. This is additional to $16,000,000 program previously announced.

Bus Terminal—Turner Construction Co., New York, N. Y., has been awarded contract for the bus terminal in New York City by the Port of New York Authority at $9,194,759, the second low bid. Merritt-Chapman & Scott Corp., New York, N. Y., was low bidder at $8,938,617.

Street Improvements—City of Mobile, Ala., plans street improvements, including 100 miles of dirt streets. Estimated cost is $7,000,000. Palmer & Baker, Inc., Mobile, Ala., is consulting engineer.

Hospital—Thompson & Street, Charlotte, N. C., was low bidder for constructing veterans hospital at Durham, N. C., at $5,685,000 when the U. S. Engineers, Wilmington, N. C., opened bids. Harbeson, Houghton, Livingston & Larson, Philadelphia, Pa., are architects.

Veterans Memorial Hall—Franklin County Commissioners, Columbus, O., will take bids January 30 for a veterans memorial hall at Columbus, to cost about $4,500,000. Associated Architects, Columbus, are architects.

Cement Plants—Huron Portland Cement Co., Detroit, Mich., plans cement plant, including two kilns, at Alpena, Mich., and a grinding plant, storage and loading facilities at Superior, Wis.

High School—Board of Education, Philadelphia, Pa., will take bids about January 8 for the construction of the South Philadelphia High School. Estimated cost is $5,000,000. Davis, Dunlap & Carver, Philadelphia, Pa., are architects. Gravell & Duncan, Philadelphia, are engineers.

Airport—Government of Canada, Ottawa, Ont., voted $3,770,000 for runways and buildings at airport, Gander, Newfoundland. Department of Transport, Ottawa, Ont., is engineer.

Hospital—Henry C. Beck Co., Atlanta, Ga., has been awarded contract to build hospital at Mobile, Ala. by the Mobile Infirmary, at $3,074,700.

Alaska Roads—Alaska Road Commission, Juneau, Alaska, plans road improvements to cost $2,500,000.

Waterworks and Sewers—City of Lubbock, Lubbock, Tex., voted $3,595,000 for water storage, pumping stations and supply lines and $2,225,000 for improving sewerage, including sewage disposal plant. G. K. Harris is city engineer.

Friant-Kern Canal—Peter Kiewit & Sons, Porterville, Calif., was low bidder at $3,176,814 for earthwork, concrete lining and structures for Friant-Kern Canal, Central Valley Project, California, December 13, when the Bureau of Reclamation, Friant, Calif., opened bids.

Transmission Line—Gulf States Utilities Co., Beaumont, Tex., awarded contract for 85-mile transmission line from Navasta to Dayton, Tex., to Stone & Webster Engineering Co., Houston, $1,850,000. E. C. Adams is company engineer.

Dormitory—Board of Regents, University of Michigan, Ann Arbor, Mich., received low bid of $2,639,000 from Bryant & Detwiler Co., Detroit, for the construction of men's dormitory, at Ann Arbor. A. R. Morison, Detroit, is architect. George Wagschal, Detroit, is engineer.

Trotting Race Track—The Davis Construction Co., Baltimore, Md., was low bidder for constructing trotting race track near Baltimore for the Baltimore Trotting Races, Inc., Baltimore. The total estimated cost of project is $1,500,000. Saxe, Williar & Robertson, Baltimore, are the architects.

Schools – Lafayette Parish School Board, Lafayette, La., plans school program to cost about $3,000,000. Favrot & Reed, New Orleans, are architects for the program.

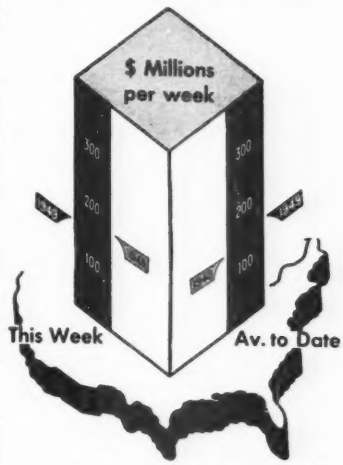
Sewage Plant Addition—H. B. Zachry Co., San Antonio, Tex., was low bidder for structures and miscellaneous improvements for sewage disposal plant addition at San Antonio, Tex., at $1,225,750. H. F. H. Helland, San Antonio, is consulting engineer; W. W. Toxey, is city engineer.

Memorial Coliseum—Hagerman Construction Corp., Fort Wayne, Inc., was low bidder at $1,850,000 for Memorial Coliseum at Fort Wayne, Ind., December 14, when Allen County War Memorial Coliseum Commission, Fort Wayne, opened bids. A. M. Strauss, Fort Wayne, is the architect.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Dec. '49	480.32	230.89
Building Cost	Dec. '49	353.07	190.86
Volume	Nov. '49	265	116



Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

	Week of Dec. 22 1949	Cumulative 1949 (51 wks.)	Cumulative 1948 (52 wks.)	% chge av.wk.
Federal	$22.2	$1,178.2	$940.3	+28
State & Mun.	53.2	3,081.0	2,651.3	+18
Total Public	$75.4	$4,259.2	$3,591.6	+21
Total Private	80.1	3,831.3	3,549.7	+10
U. S. Total	**$155.5**	**$8,090.5**	**$7,141.3**	**+16**

Contracts by type of work

	This Week	Cumulative 1949 (51 wks.)	Cumulative 1948 (52 wks.)	% chge av.wk.
Waterworks	$1.7	$205.8	$207.9	+1
Sewerage	3.8	274.3	225.8	+24
Bridges	3.8	350.9	296.7	+21
Highways	11.9	885.9	984.2	−8
Earthwork, Waterways	2.9	519.2	510.6	+4
Buildings, Public	47.2	1,725.7	1 6.7	+53
Industrial	11.8	944.7	1 7.3	−11
Commercial	53.8	2,383.1	1 72.7	+30
Unclassified	18.5	801.0	809.4	+1

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1949 (51 wks.)	Cumulative 1948 (52 wks.)	% chge av.wk.
NON-FEDERAL	$5,510.0	$5,175.0	+9
Corporate Securities	2,145.6	2,684.4	−19
State and Municipal	2,979.4	1,998.3	+52
U. N. Building Loan	....	65.0	...
Federal-Aid Highway	385.0	427.3	−10
Federal	1,748.2	1,558.9	+12
Total Capital	**$7,258.2**	**$6,733.9**	**+10**

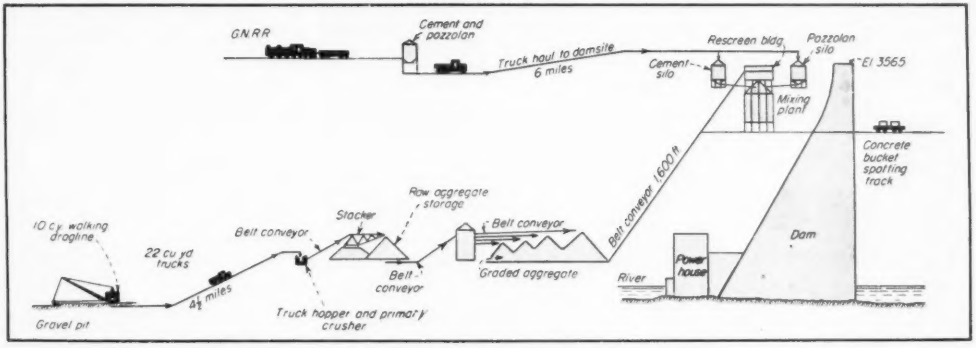
TWO EIGHT-CUBIC-YARD BUCKETS of concrete start out along the cableway for the bottom of Hungry Horse Dam.

Concreting Begins at Hungry Horse Dam

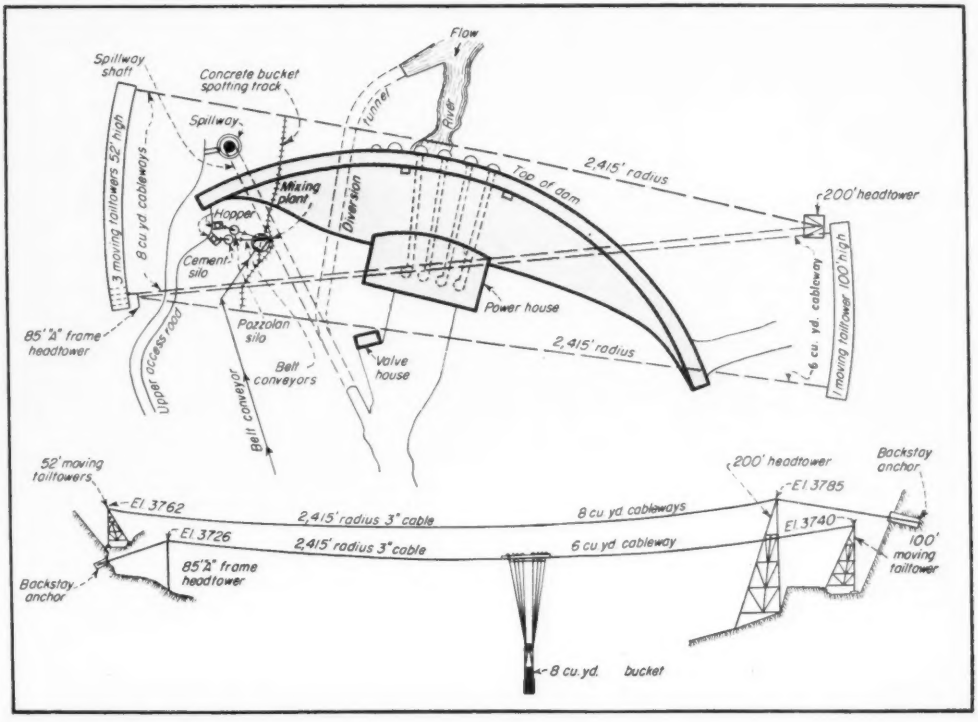
WITH the first concrete placed on Sept. 7, a shakedown period began for concrete mixing and placing equipment at Hungry Horse Dam. This will last until cold weather shuts down work for the winter. It is anticipated by engineers of the Bureau of Reclamation that no more than 50,000 cu. yd. of the more than 2,900,000-cu. yd. total will be in place by that time.

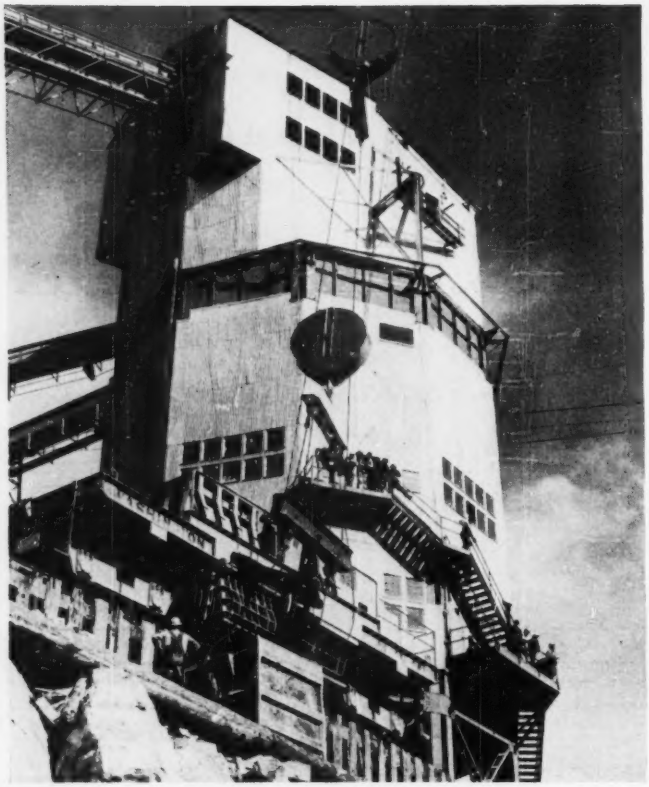
Then any "bugs" that develop in the carefully planned facilities can be ironed out during the winter shutdown. This is an essential part of the work on the world's fourth largest dam: Next spring, summer, and fall the order of the day at Hungry Horse will be concrete, concrete, and more concrete. Shutdowns then will be costly—the contractor hopes to place more than a million cubic yards of concrete during the 7½ to 8 months of 1950 in which weather is expected to permit concrete work.

Briefly, the concrete is produced as follows: Raw aggregate is produced and trucked 4½ miles to a primary crusher, which removes the oversize pieces, and is stockpiled. A conveyor belt then takes it to the aggregate



AGGREGATE HANDLING at Hungry Horse Dam and the facilities for mixing and transporting concrete are designed to permit the placing of as much as 320 cu. yd. of concrete an hour during the working season.





CONCRETE CARRYING CARS with two 9½-cu. yd. hoppers transfer concrete from the mixing plant, in the background, to points where 8-cu. yd. buckets suspended from the cableways can be filled.

plant where it is rough screened, washed and, if necessary, crushed.

From stockpiles at this plant, a conveyor belt takes the graded aggregates to the concrete plant where final screening is accomplished. Cement and pozzolan are brought by truck from a rail siding some 6½ miles away. After automatic batching in an electrically controlled system, concrete is mixed in one of four 4-cu.yd. mixers. Concrete is then discharged into special rail-mounted concrete cars that fill the 8-cu.yd. buckets directly underneath one of the four cableways spanning the canyon.

River side aggregate source

The aggregate source is a 110-acre site at the junction of the south and middle forks of the Flathead River. There, a big walking excavator with a 165-ft. boom and 10-yd. scoop loads directly into 22-yd. bottom dump trailers for the 4½-mile haul to the aggregate plant.

Normally, these big trailers would be hauled by 200-hp. tractors, but as the contractor already had several 150-hp. tractors, formerly used for end-dumping service, the latter have been converted at small cost for hauling the bottom-dump trailers and are being used during the shakedown period this fall. If they prove adequate, a considerable saving will be made.

Some consideration was given to placing the aggregate plant at the river bank location where the raw aggregate is produced, and transporting the finished aggregate by conveyor belt to the concrete plant. This was ruled out for several reasons: First, and probably most important of all, in cold climates a conveyor belt is considered a risky operation. At Shasta Dam where there was large-scale use of conveyor belts, there was no severe winter weather. Here at Hungry Horse the contractor hopes to work the aggregate production facilities much later in the fall and much earlier in the spring than the concrete mixing facilities. Thus, a large stockpile of aggregate will be available should any unit in the aggregate facilities need to be shut down for repairs.

Another reason for ruling out a conveyor belt is that the location is such that two hazardous and expensive river crossings would be required. A road was necessary anyway and with very little effort it was enlarged and will be maintained for the truck haul. If a truck breaks down, only one unit out of sixteen would be out of service. However, if a belt breaks, the entire operation would be shut down.

Flexible processing facilities

The aggregate will be hauled 4½ miles and dumped into a preliminary screening and crushing unit. This will screen out all the oversize (more than 6 in.) material and crush it to size. A belt conveyor will then take the material to the raw aggregate storage area where a stacker will spot the raw aggregates. Storage capacity is 400,000 tons dead storage and 151,000 tons live storage.

A second belt conveyor in a recovery tunnel will take the material to the screening plant as needed. Here the aggregate will be screened, washed and crushed to size.

The raw supply is deficient in fines. Thus, the primary job of crushing will be to make sand. However, the crushing facilities are complete enough so that a fully flexible system is available and any size can be produced in large quantity.

Sand is taken to three stockpiles of 1,200-ton capacity each. One stockpile is for medium sand, one for fine, and one for coarse. A recovery tunnel under these stockpiles is available to blend the sand. Weighing feeders located on the conveyor belt in the recovery tunnel control the blending.

The sand must meet the following requirements:

Screen No.	Percent Retained
4	0 to 5
8	10 to 20
16	10 to 20
30	10 to 30
50	15 to 35
100	12 to 20
pan	3 to 7

However, there are no strict fineness modulus requirements for sand except that an hourly sample cannot vary more than 0.2 from the average of the last ten samples.

The blended sand stockpile has a capacity of 25,000 tons and is located over the same recovery tunnel that serves the six aggregate stockpiles. Two of these are of 3,200-ton capacity and serve ¾ to 1½-in. size, two more are of like capacity and serve No. 4 sieve to ¾-in. size, one stockpile is of

5,660-ton capacity and serves 1½-in. to 3-in. size and the sixth stockpile is of 5,660-ton capacity and serves the 3- to 6-in. size.

From these stockpiles a 36-in. belt conveyor in the recovery tunnel takes the sand and gravel 1,600 ft. to the mixing plant. Here the gravel is final-screened to remove any undersized pieces. Particles passing No. 4 screen are wasted. Sand is not screened at the mixing plant.

Final screening just before batching is now almost universally required on USBR work. Aggregate handling after initial rough screening is apt to break the pieces into smaller sizes. Thus, final screening guarantees proper aggregate gradation in the mix.

Cement and pozzolan are brought to the project by rail. Pozzolan comes from the Chicago area, being made from power-plant fly ash, and cement comes from three mills in the Montana-Washington area. A covered unloading shed with 30,000-bbl. storage capacity is located on a spur track 6½ miles from the dam. Special covered truck-trailer units will be used to haul the cement and pozzolan to silos near the mixing plant.

Fast concrete production planned

Mixing will be accomplished in the four 4-cu.yd. mixers that were used at Shasta Dam. Completely automatic measuring controls are provided. Space is available for a fifth 4-cu. yd. mixer should it become necessary.

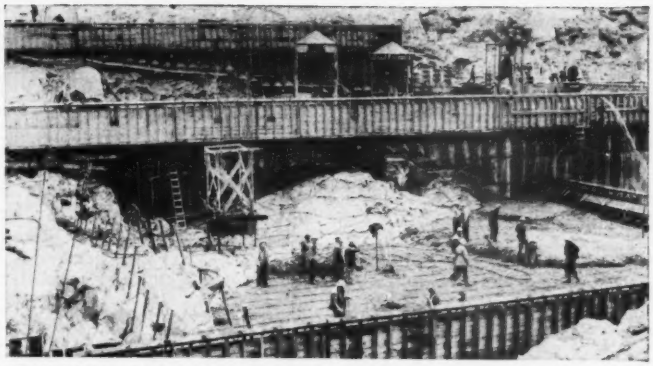
To speed the delivery of concrete to the job, three specially built gondola cars, each carrying two 9½ cu. yd. side-dump hoppers, are being used to move concrete from the mixing plant to points directly under the cableways. These cars are self-propelled by diesel-electric motors and will travel on the standard-gage railroad tracks shown near the mixing plant in the accompanying site layout sketch.

Each hopper car will be able to take the entire one-cycle output of the four mixers. They will carry this concrete to points directly under the cableways, where the concrete can be discharged into buckets already spotted to receive their load but still attached to the cableway.

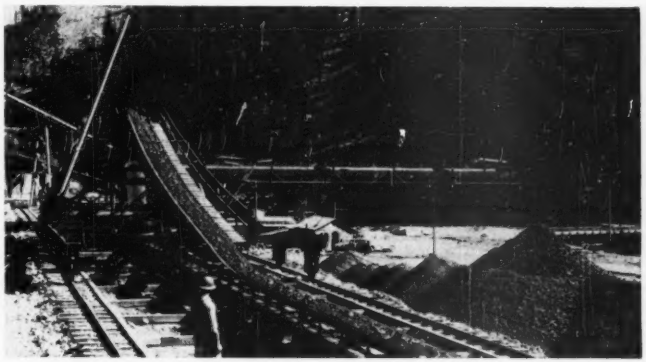
By thus eliminating the time lost in spotting empty buckets on cars for direct loading at the mixing plant and in picking loaded buckets off cars, it is expected that the capacity of the cableways can be increased 25 percent over the older system.

With a specified mixing time of 2½ min., the mixing plant can produce about 320 cu. yd. an hour (allowing 30 sec. for filling and emptying the mixers).

Cycle for the cableways is 4 min.



INSTALLING COOLING PIPES in one of the lower sections of the dam. More than 1,000 miles of 1-in. pipe will be used for this purpose. Hopper-like structures on second level are orchard heaters for use during brief cold spells.



RAW AGGREGATES REACH the screening plant on the belt conveyor entering the top of the building. Three grades of sand are stockpiled on the right and blended sand and the various sizes of gravel are stockpiled at the left.

That is, 4 min. is the average time required to load and trolley a bucket of concrete out to position, lower it, dump it and trolley the empty bucket back. Thus with concrete production 320 cu. yd. an hour, 40 8-cu. yd. buckets will be filled. One cableway with a 4-min. cycle can handle 15 buckets an hour.

Three cableways work from one 200-ft. head tower located across the canyon from the mixing plant. Each cableway has a 52-ft. high moving tail tower located on an 810-ft. long track on the opposite abutment.

The fourth cableway has an 85-ft. high A-frame located near the mixing plant as a stationary tail tower. The movable head tower is 100 ft. high located on a 610-ft. track on the abutment opposite.

According to the specifications, concrete can be placed at any time, provided certain precautions are taken. These require that when the temperature falls below freezing, the concrete must be heated for curing purposes to 50 deg. for not less than 72 hours and protected from freezing for 14 days without drying it out. As any great amount of this heating work would become prohibitively expensive, the contractor will have no alternative but to shut his facilities down when cold weather sets in.

Conversely, in the springtime, concrete operations can begin as soon as the average mean temperature gets above freezing. The contractor anticipates difficulties in the springtime in thawing out the aggregate stockpiles. To overcome this, steam pipes have been installed in the stockpiles. It is hoped that this will permit a relatively early start.

Fault zone requires treatment

Before placement of concrete could be started, it was necessary to give special treatment to a fault zone in the river channel. This fault crosses the site diagonally and was known to exist when the dam was started. However, as its extent was not known

in detail, the engineers and consultants of the Bureau of Reclamation were not able to study it until it was completely uncovered.

As a result of this study, an additional 44 ft. of excavation in the fault zone was required over that originally predicted. This makes the height of the dam 564 ft. so Hungry Horse Dam will when completed be the third highest (and still fourth largest) concrete dam in the world (Hoover is 726 ft. high, Shasta is 602 ft. high, and Grand Coulee is 550 ft. high).

Two deep cut-off shafts will be excavated at the upstream and downstream ends of the fault zone to permit visual inspection and grouting of fault zone foundation rock. These shafts will be filled with concrete after completion of grouting. The shafts also serve to increase the percolation distance of any water that might seep under the dam through the fault zone.

The upstream shaft will be 270 ft. deep and the downstream shaft 135 ft. deep. These shafts will be excavated and grouting will be started during the winter. Thus, this work will not delay other construction work.

Concrete placement could not be started until USBR engineers decided to what depth the fault material had to be excavated. The specifications prohibited pouring concrete until the entire foundation was uncovered (excepting shafts). The foundation then had to be grouted and no concrete could be poured within 100 ft. of an ungrouted area.

Although the special treatment required in the fault zone meant extra work, it was completed quickly and placement of concrete was started essentially on schedule.

Water to be stored in 1952

Concrete work will be keyed to the requirement of having 1,000,000 acre-ft. of usable storage after the 1952 runoff (May and June). At least half of the concrete must be placed during 1950 and '51 to meet this requirement. This water will be released for downstream use and for operation of the first generators, which are expected to go on the line in October, 1952.

Thus, Hungry Horse Dam will first help relieve the acute power demand during the 1952-3 winter season. The power should be fully developed by the end of 1953.

This will be the first major new hydro power in the Pacific Northwest since Grand Coulee first generated. Power from McNary Dam is not expected until December, 1953.

As was reported in an earlier article (ENR Apr. 14, 1949, p. 58), pozzolan will be used to replace some of the cement in the mix. This is running as high as 48 percent of the weight of the cement. Thus, quantities for a 4-cu.yd. batch are as follows: Cement—752 lb., pozzolan—360 lb., sand—3,384 lb., each size of aggregate (four sizes)—2,832 lb., water—540 lb., and admixture—800 cc.

A richer mix than this will be used for a face coat of 5-ft. minimum thickness on all exposed surfaces. The same amounts of sand and aggregate will be used in this face mix. However, a 4-cu.yd. batch will contain 1,024 lb. of cement and 488 lb. of pozzolan.

Contractor for this $43,000,000 job is General-Shea-Morrison, a combination of twelve firms with the General Construction Co. as sponsor and the Shea Co. as co-sponsor. The advisory board reads like a bluebook of heavy construction: J. A. McEachern, General Construction Co.; H. W. Morrison, Morrison-Knudsen Co., Inc.; Peter Kiewit, Peter Kiewit and Sons Co.; Fred Birch, S. Birch & Sons Construction Co.; W. A. Durkin, Walsh Construction Co.; Edgar F. Kaiser, Kaiser Engineers, Inc.; and G. J. Shea, of the Shea Co. The contractor's engineering board consists of C. E. Dunn, Morrison-Knudsen Co., Inc.; George Havas, Kaiser Industries, Inc.; and J. Samuelson, General Construction Co. Representing the combination at the dam is C. W. (Smokey) Wood, project manager; Mel Hord, assistant to the project manager; and Dick Jones, chief engineer. Jones fathered the development of the aggregate and concrete producing facilities with the advice of the others previously mentioned.

L. N. McClellan is chief engineer of the U.S. Bureau of Reclamation. C. H. Spencer is construction engineer at Hungry Horse, David Culver is assistant construction engineer, C. F. Palmetier is office engineer, and E. J. Nieman is field engineer for the bureau.

Electron Microscope Identifies Bacteria

The electron microscope, put into use in Chicago's South District water plant two years ago (ENR April 29, 1948, p. 93) is now being used experimentally for identifying of bacteria specimens in the municipal water supply.

The initial problem consisted of a comparison of the coliform determinations made on the electron microscope with parallel Standard Methods determinations.

Albert Vatter, biologist, has made studies on 2,000 selected lactose broth cultures. The portions were chosen from the 24- and 48-hour routine presumptive test on raw and treated water samples from the filtration plant and distribution system. Each portion was placed on the specimen screen and examined for type of bacteria present.

About one-half of the samples selected were from lactose tubes, which showed a cloudy growth but no gas formation.

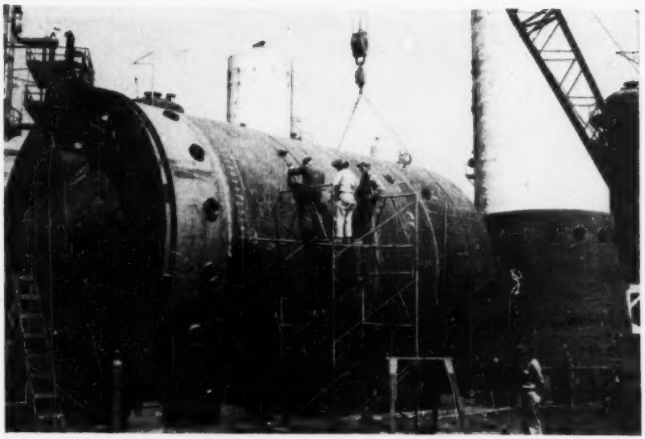
The results of the electron microscope observations made, compared with the parallel Standard Methods tests, are summarized in the accompanying table.

(By enlargement of fine-grain negatives of electron-produced images, the electron microscope gives useful magnifications up to 200,000 times on solid materials and 50,000 times on bacteria. The machine can do its whole job on one specimen in about two hours.)

Combined Results of 2,000 Samples, from 24 and 48 hour Lactose Tubes

Determination	*EM+ SM+	EM− SM−	EM+ SM−	EM− SM+
Number of Specimens	458	1380	118	44
Percentage of Total	22.9%	69.0%	5.9%	2.2%
Agreement with Standard Methods	.....	.....	91.9%	.....
Disagreement with Standard Methods	.....	.....	8.1%	.....
a. Underestimation of Coliforms	.....	.....	2.2%	.....
b. Overestimation of Coliforms	.....	.....	5.9%	.....
Actual error	.....	.....	5.9%	.....
c. Enterics detected by E. M. but not in initial S. M. test	.....	.....	2.2%	.....

*EM = Electron Microscope
SM = Standard Methods
\+ = Results Positive
− = Results Negative



ROLLING THE REGENERATOR—Crane swings sling to roll refinery pressure vessel, for downhand welding on horizontal joints. Skirt section shown at right.

Double Gin Pole Hoisting Tower Raises Welded Vessels at Refinery

PRESSURE VESSELS for a tall catalytic cracking tower at Big Spring, Texas, were welded on the ground and raised to position by a hoisting frame made up of two 150-ft. gin poles connected at the top by a beam.

The catalytic cracker, which manufactures gasoline and other products from crude petroleum, consists of three principal structural elements on top of a 26-ft. high concrete base frame. They are: (bottom) a 110-ton regenerator, measuring 9 ft. 8 in. by 50 ft.; (middle) an intermediate skirt (26 ft. high), and a reactor, 13 ft. 6 in. by 40 ft.

Ordinarily the elements are erected in place, piece by piece, according to Southwestern Engineering Co., the erection contractor. Here, it was decided the welding could be done more cheaply by setting the vessel elements horizontally in a roller skid on the ground. This would permit making circumferential welds downhand. Moreover, it would bring about better dimension control in the vessels. The only difficulty was erection, since assemblies up to 110 tons had to be raised. The gin pole frame solved the problem.

Bases for the frame were timber cribs 10 ft. high, located at opposite corners of the concrete base. The two 150-ft. poles stood atop these cribs and, through pin connections, supported a 30-ft. cross-beam 4 ft. deep. The frame was held by six guys: two in the frame's plane; and two to each gin-pole top, in planes at right angles to the frame plane. Guys on one side of the frame were "live," both being connected to a 90-hp. single-drum hoisting engine that imparted one-side tilt to the frame. Supplementary dead guys stood with the live guys to limit frametilt to 10 deg. from the vertical.

Thirteen-part tackles used

Direct hoisting was performed by a second 95-hp. engine handling $\frac{7}{8}$-in. wire rope reeved through blocks at the gin-pole bases, and through 13-part tackles rigged to the gin-pole tops.

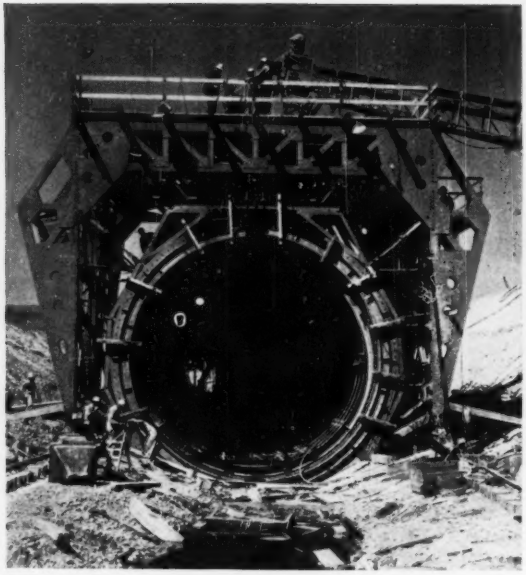
For hoisting an assembly, the frame was tilted 10 deg. out and tackles were attached to lifting rings on the assembly. The load was raised slightly above its ultimate elevation, then moved laterally by tilting the frame back to vertical position; then the assembly was lowered into place. To control load swing and avoid collision with the elements already in place, light lines were attached to the assembly's lower parts.

The big frame was in position for catalytic cracker erection only ten days—a relatively short time for the equipment; under piece-by-piece erection procedure a derrick would have been required for many weeks. However, the frame stayed in position four more weeks, for hoisting piping and other steel work. Frame erection and dismantling each took five days. Overall job time was 117 days, said to be an unusually short time. The finished tower was within $\frac{1}{2}$-in. of design height and less than $\frac{5}{8}$-in. out of plumb.

RAISING THE REACTOR—Double gin pole carries 85-ton assembly up over regenerator. Note frame's tilt to left, and slack in left-hand guy. Tilt controlled by two guys at right.

Contractor for Cosden Petroleum Corporation was Refinery Engineering Co., Tulsa, Okla.; sub-contractor for work described in this article was Southwestern Engineering Co., Los Angeles. Pacific Crane & Rigging, Inc., Los Angeles, provided the hoisting equipment. Universal Oil Products Co. designed and were the process engineers for this tower.

Gantry Forms Build Soap Lake Siphon



SLIP FORMS are held in place during concrete pouring by a combination of hydraulic and screw jacks, also used in stripping.

AN INGENIOUS SYSTEM of rail-mounted gantries that carry movable forms is building the 2¼ mi. Soap Lake siphon of the Columbia Basin irrigation project.

The large reinforced concrete conduit is a part of the West Canal of the project. Winston Brothers Co., and the Utah Construction Co., are building it under a $7,614,728 contract. With a capacity of 5,100 cfs., the siphon will supply water for a large part of the first 87,000 acres to be placed under irrigation in 1952.

The contract involves two separate types of conduit—8,252 ft. of 22 ft. diameter pipe lined with a cylinder of ¼ in. steel plate, and 4,632 ft. of 25 ft. diameter reinforced pipe, unlined. The unlined pipe is 24 in. thick and the lined pipe 21 in. thick.

The lined section is being built by using removable structural steel bracing, so that the lining actually serves as the inside form.

The entire structure is built in excavated trench and will be back-filled when completed.

The fact that the first siphon work of this magnitude had already been done on the project on Dry Coulee siphons 1 and 2 (4,400 ft. and 1,110 ft. long respectively) speeded the work and aided in development of the forms and handling system that were finally used. Some of the same forms used on the Dry Coulee job are being used on the new work, but one additional set of forms has been built for the unlined part of the work and a new and improved set was required for the lined section.

Briefly, the form placing and concrete placing sequence is as follows:

A large rail-mounted gantry rigidly supports the forms during concrete placing. This gantry rides on rails set with extreme accuracy in concrete curbs on each side of the conduit line.

Collapsible Inside forms

Inside forms for the unlined section are 25 ft. long, collapsible, and of the type used in normal tunnel work. However, to avoid installing rails in the bottom of the conduit, the forms are moved forward by a heavy structural steel bridge, slightly more than 60 ft. long. After a pour is made and the concrete set, a trolley on top of this bridge is attached to the upper part of the form and the bridge is picked up and moved forward so that the process can be repeated.

Wheels of the trolley ride in steel channels so that either the trolley or the bridge can be moved.

On the steel-lined section, the contractors designed 40 ft. long forms, the structure articulated in two 20-ft. sections to account for minimum radius of curvature which is 409 ft. to the center-line.

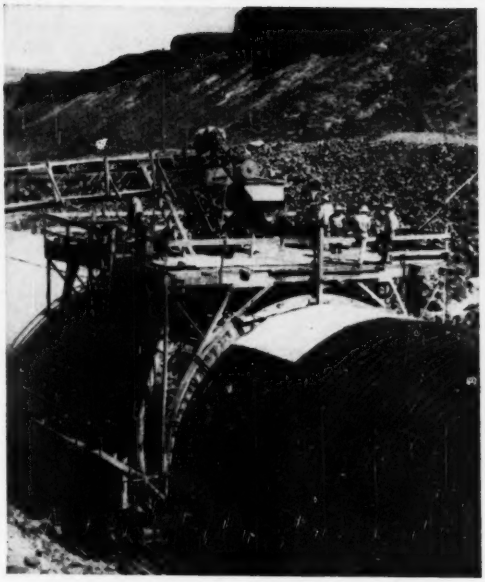
No inside forms are required for the lined section, since the steel liner serves that function.

Ribs of heavy structural steel are installed to hold the thin (¼ in.) steel cylinder in shape while the concrete is placed. Rails set into the ribs are used to move jumbos that serve as platforms for welding and removing the ribs.

Outside forms for the lined section are supported by 20 hangers, 32 screw-type jacks and 16 hydraulic jacks. These outside forms are set in position by the hydraulic jacks (there are eight on each side, four attached to each 20 ft. section). Then the screw jacks are tightened up and the forms are held rigid by both sets of jacks during the pour. Struts are run from the gantry to the cut bank to provide additional stability.

After the concrete is placed and set, the screw jacks are freed and the hydraulic jacks strip the forms, swinging them upward and outward some 18 in., with the hangers located at the top-center carrying the load. The jumbo is then moved ahead 40 ft. and the process repeated.

Concrete is batched in a central plant near the aggregate supply 8 miles from the job. Trucks that carry three 1½ cu.yd. batches carry the dry mix to a mixing plant on the siphon project and mixed concrete is carried then to the siphon in open trucks and dumped on a conveyor belt. The



GANTRY CRANE was used solely to place the 20-ft. long sections of steel lining.

SIPHON CROSSES the southern end of Grand Coulee, just north of Soap Lake. First work was the steel-lined conduit.

belt takes it to hoppers on a platform on top of the gantry from whence buggies wheel it in place. A pour on the lined section involves 200 cu.yd. of concrete, and takes four hours.

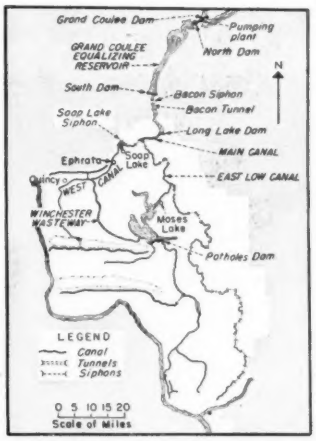
Layout problem

As originally laid out, the Soap Lake siphon was to cross Soap Lake on a trestle or a rock fill. However, the silty clay bottom of the 30-ft. deep lake could not support such structures. A tunnel under the lake was ruled out because rock formation is too deep. Accordingly, a route around the north end of the lake was selected—a south end location would be more expensive.

In its new layout, the siphon must cross the southerly end of the Grand Coulee (60 mi. from Grand Coulee Dam). Open canal, which is 19 ft. deep and has a 38 ft. bottom width and an 85 ft. top width, is located on each side of the siphon. Maximum head is 247.15 ft. (measured from canal water surface to lowest siphon invert elevation). This head applies to the steel lined portion, while the unlined portion of the head is 116.81 ft.

The siphon is being built in a trench carefully excavated to proper grade. When rock is encountered, the trench is over-excavated. For such over-excavation, select material is backfilled and compacted to 95 percent maximum density.

Bids on the work were arranged to allow a comparison of the cost of steel pipe as compared with steel lined concrete conduit. Five separate bidding schedules were involved, arranged so that contracts could be awarded on schedule 1 or schedule 2 separately; schedules 1 and 2 combined; schedules 3, 4 or 5 separately or schedules 3, 4 and 5 combined. It was found that the steel-lined concrete pipe was cheaper than steel pipe alone for the section where it was required.



THE WATER SUPPLY for much of the early irrigation development in the Columbia Basin will come through the siphon —which is itself a part of the west canal of the basin project. About 87,000 acres near Quincy will be supplied water by 1952.

The project is under jurisdiction of the U. S. Bureau of Reclamation, with L. N. McClellan, chief engineer. Frank A. Banks is manager of the Columbia Basin division, and H. A. Parker supervising engineer of the irrigation division. Harold Sheerer is resident engineer for the Soap Lake siphon.

Winston Brothers is the lead contractor for the Winston-Utah combine, and work is under the direction of R. F. Rasey, West Coast manager for Winston. George M. Mann is project manager, and Hugh S. Thompson is construction manager.

Much of the work is being carried on by subcontractors. The American Pipe & Construction Co., Portland, Ore., is fabricating the steel plate liner; a joint venture of Humiston-Rosendahl, Inc., Los Angeles, and Bigge Drayage Co., Oakland, is transporting, placing and welding the steel liner. D. V. Libby, Los Angeles, is fabricating and placing reinforcing steel; Walter Ferem Co., Los Angeles, is painting the steel liner and miscellaneous metal work; Consolidated Western Steel Corp. manufactured the movable forms and the ribs for the liners.

FIG. 1. FLOODED INTERSECTIONS that caused considerable damage and inconvenience in Buffalo's Bailey-Kensington area are no longer possible because . . .

FIG. 2. HIGH-CAPACITY street inlets draw off storm water quickly into . . .

Retention Basin Eliminates Need for

Frederick W. Crane
General Manager
Buffalo Sewer Authority
Buffalo, N. Y.

AN UNCOMMON STORM-WATER retention system—expected to eliminate damaging floods in the northeast section of Buffalo, N. Y. (Fig. 1)—has been built for about one-half of the estimated cost of otherwise-required full-capacity storm drains.

The North Bailey Sewer District, which is given flood relief by the new storm-water retention system, has an area of about 1,100 acres and includes business and residential areas. The district is served by a system of combined sewers discharging into the 2½-mile Bailey Avenue trunk sewer built in 1893.

At present stage of tributary-area development, the trunk sewer has sufficient capacity for runoff from average "four times a year" storms, but is inadequate for heavier storms of less frequency. High-intensity storms have flooded cellars and low areas especially at the intersection of Bailey and Kensington Avenues. On one recent occasion volume of water in this area was estimated at about 200,000 cu. ft.

Plans prepared for relief measures for the district called for construction of a storm drain parallel to the Bailey Avenue trunk sewer. Due to required size and depth and unfavorable ground conditions, the cost was prohibitive in view of capital-financing limits of the Buffalo Sewer Authority.

The storm-water retention system,

FIG. 4. LARGE RETENTION BASIN that holds excess runoff until discharge capacity becomes available in the trunk sewer outlets. The basin is dewatered by a . . .

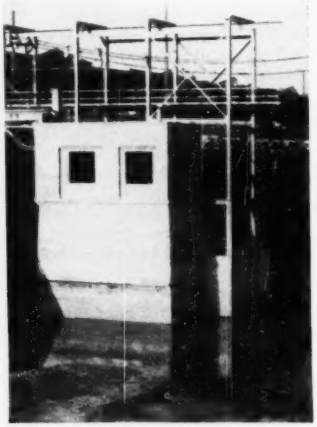


FIG. 5.—DUAL PUMPS float-controlled by levels in basin and outlet sewer.

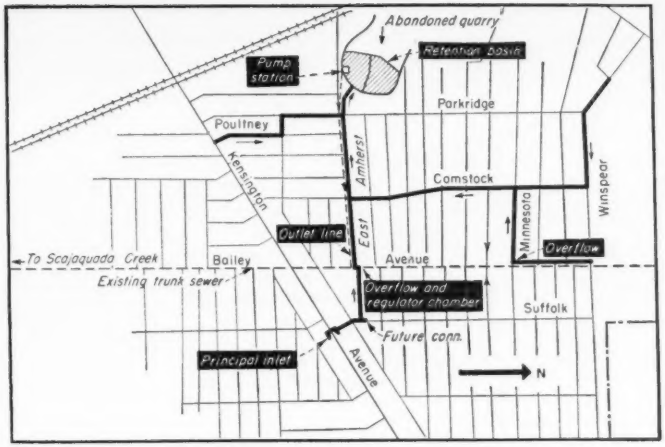


FIG. 3. A SYSTEM of overflow drains that relieves existing, inadequate trunk sewers by emptying into a retention basin.

Costly Storm Sewers

locally known as the "Quarry Project," was developed as an alternative to obtain the largest benefits at a minimum initial cost.

Stored water pumped to sewers

The $1,794,000 "Quarry Project," provides temporary storage — in an abandoned-quarry basin—for 2,350,000 cu. ft. of excess storm water. Storm-water runoff in excess of the existing-sewer capacity is diverted through new overflow drains to the retention basin (Fig. 4) and there held until capacity becomes available in the main sewer.

Retained water is disposed of, at a rate commensurate with available outlet capacity, by pumping to the existing 30-in. sewer in E. Amherst Street through which water reaches the Bailey Avenue sewer and the Scajaquada Creek outlet (Fig. 3).

The quarry project consists of four essential parts:

1. A system of new drains serving the northerly part of the district and flow-regulation devices to divert excess storm water to the retention basin.

2. A retention basin which acts as a regulating reservoir to control discharge of storm water through the existing but inadequate trunk sewer.

3. An automatically actuated pumping station (Fig. 5) for withdrawing accumulated water from the basin when

a. Water in the suction well is above a pre-determined level; and

b. Unused capacity is available in the Bailey Avenue Trunk sewer.

4. An outlet sewer through which pumped discharge is returned to the trunk-sewer system.

Relief drains divert excess runoff

The system of new drains is designed so that dry-weather flow plus a limited but substantial amount of storm water will be retained in existing sewers. Excess storm water will be diverted to the retention basin for temporary storage.

New drains in and east of Bailey Avenue (Fig. 3) operate as combined sewers supplementary to existing sewers. New drains west of Bailey Avenue function solely as storm-water sewers, with overflow relief provided for the Bailey Avenue trunk sewer at Minnesota Avenue and at East Amherst Street.

To minimize amount of sewage matter delivered to the retention basin, overflow structures were designed to retain all flows up to 20 times estimated future dry-weather flow. Stationary concrete weirs were constructed high enough to retain desired amounts long enough to discharge capacities corresponding to maximum runoff from 10-yr. frequency storms.

As a result of retaining such flows in existing sewers, it was estimated that sanitary sewage likely to reach the basin through overflows and storm drains would be equivalent to continuous discharge from about 30 to 40 persons when the tributary area reached its full development with a population of 12,750.

To insure against undesired quantities of storm water continuing in the Bailey sewer below E. Amherst, a regulator (Fig. 7) is located just downstream from the overflow weir. This original-design regulator permits 45 cfs. (the equivalent of dry-weather flow) to pass when upstream water level is at the weir crest. As the water level rises, it restricts downstream flow to a 25 cfs. minimum when upstream flow is maximum.

At a number of other points throughout the system where new drains cross existing combined sewers, overflows have been built to carry off

FIG. 6. PNEUMATICALLY PLACED cement grout seals off a 15 ft. high strip of the quarry wall that surrounds part of the retention basin.

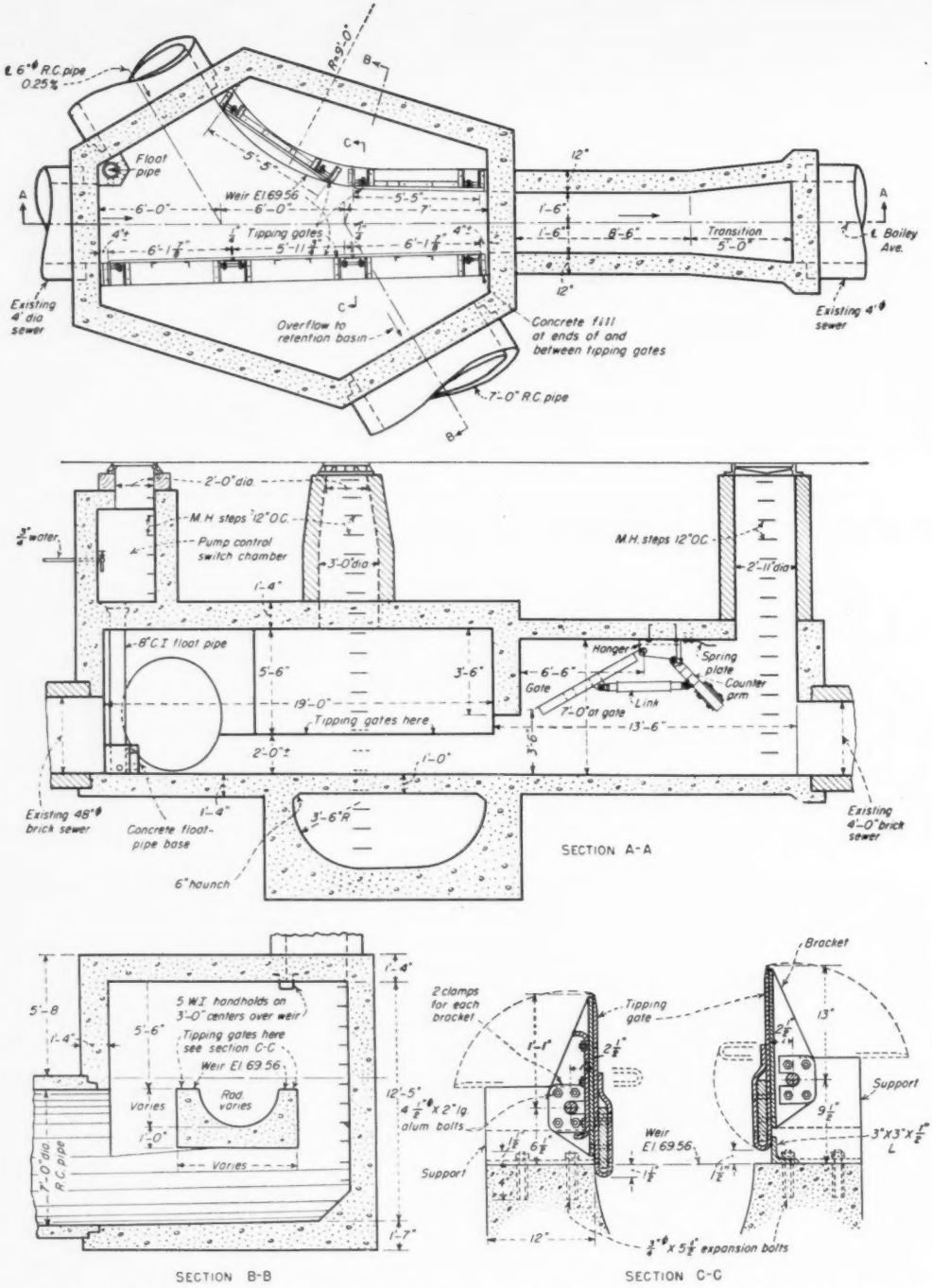


FIG. 7. **OVERFLOWS** to the storm-water retention basin do not operate until capacity of combined trunk sewer has almost been reached. Tipping gates atop stationary weirs facilitate spillage of heavy-storm runoff.

heavy-storm surcharge. These existing sewers are secondary branches. Overflows from these branches are designed so that diversion to the retention basin will not occur before existing-sewer flow equals 47 to 54 times volume of average dry-weather flow.

With this system, it was calculated that a storm of 0.18-in. per hr. intensity and one-half hour duration will cause the overflows in Bailey Avenue to operate and that flows will reach stationary weir crests and possibly overflow 35 times in an average year with a total overflowing duration of about 35 hrs., distributed as follows:

Overflow less than 0.5 hr—13 times per year; overflow for 0.5 hr. or more—22 times per year; overflow for one hour or more—14 times per year; overflow for two hours or more—6 times per year; overflow for 2.5 hours or more—3 times per year.

Overflow regulators modified

A substantial part of the system was completed and put in operation in June 1949.

Almost immediately a storm occurred that was ideal for purposes of checking sanitary conditions prevailing in the basin after a storm.

The storm was of fairly short duration but of high intensity. It resulted in the overflow of some 100,000 cu. ft. of storm water to the basin.

While several hydraulic factors—such as rate and duration of overflow, heights of water over the weir and amount of accumulated water—corresponded closely with those expected from the portion of the system in operation, it was noted that sludge deposits in the basin after dewatering substantially exceeded expected amounts.

The explanation might be simple. Of the 20 miles of combined sewers tributary to the Bailey Avenue Trunk north of East Amherst Street, the larger part does not have self-cleaning velocities during dry-weather periods. Unpredictable amounts of sewage matter are liable to settle in the sewers and to be stirred up and carried away in suspension during storms.

Although 45 cfs.—or about 20 times DWF—would pass the overflow weir at Bailey Avenue and East Amherst Street with a velocity of 8 sec. ft. before overflowing started, the "test storm" was of such intensity that this rate of flow was reached before all the "suspended-sewage deposits" had reached the location of the overflow.

Although facilities provided for periodic cleaning of the retention basin were able to handle the sludge deposits in a satisfactory manner, it was deemed desirable to study methods for obtaining a more beneficial control of flow distribution between the Bailey Avenue Trunk (through which the flow ultimately will reach the sewage-treatment plant) and the new storm drains (which carry the excess water to the retention basin).

The purpose of such control facilities would be to utilize capacity of the Bailey Avenue Trunk Sewer almost to capacity before overflowing and at the same time provide such means for discharge of excess water that overcharge of the Bailey Trunk would be prevented at all times and at all points along its route.

Closest approximation to this ideal that seemed possible was the installation of "tipping gates" on top of the concrete overflow weirs and installation of an additional "flap regulator" at a further downstream point.

The "tipping gates" are designed so that no overflowing will take place until water level has reached the top of the gate. At that moment, hydraulic forces tip the gate to a horizontal position and discharge will then take place at a high rate.

The tipping gate installation in the overflow chamber at Bailey and E. Amherst is of novel design to meet the several specific conditions imposed by the circumstances.

The "flap regulator" is located at Bailey and Kensington at a point where some surcharge is permissible in the upstream but not in the down stream sewer section. Until the sewer is running about two-thirds full, the regulator is untouched by flow. When

TABLE I—DESIGN AND ENGINEERING DATA, STORM-WATER RETENTION PROJECT, BUFFALO, N. Y.

OVERFLOW CHAMBERS IN BAILEY AVENUE:

Location	Weir length (ft.)	Retained flow (cfs.)	Overflow (cfs.)
Minnesota Avenue	19	20	120
E. Amherst St.	31	45	290

Overflows are tipping gates on stationary weirs.

OVERFLOW SEWER TO BASIN: 7-ft. horseshoe section; 2,645 ft. long, constructed in tunnel; maximum capacity 450 cfs.

RETENTION BASIN: Divided into inner basins; 1,103 lin. ft. of gravity-type, reinforced concrete retaining wall, 13-ft. maximum height; 14,870 cu. yd. loose-rock excavation; quarry walls pneumatically grouted with cement mortar to 15-ft. height above basin bottom; Inner basin—16.1-acre-ft. storage capacity; inner and outer basin—54-acre-ft. storage; flushing system—3-in. cast-iron water main with valved hose connection spaced about 100 ft. on perimeter of inner basin.

PUMPING STATION: Two 16-in. vertical volute pumps with 75-hp. electric drives; capacities 6,750 gpm. at 36-ft. total head; operating range—3,000 to 7,500 gpm. for 45 to 33 ft. total head; operation automatically float-controlled by water levels in retention basin as well as in existing trunk sewer; lower section—30-ft. high re-inforced concrete; upper section above flood level—12-ft. high brick; sump—8 ft. deep below retention-basin bottom; inlet to suction chamber protected by 4x½-in. vertical-bar rack with 2½-in. clear openings.

PUMPED-DISCHARGE RETURN: 24-in. dia. RC pipe; 600-ft. long; 16-cfs. capacity.

TABLE II—PROJECT SUBDIVISIONS AND CONTRACTORS, STORM-WATER RETENTION PROJECT, BUFFALO, N. Y.

Item	Contractor	Cost
Quarry Property	Henry M. Decher, Inc., Buffalo, N. Y	$40,000
24-in. Retention-Basin Outlet Drain	Henry M. Dechert, Inc., Buffalo, N. Y	12,500
Contract A	Pumping Station, Leising Bros. Corp., Buffalo, N. Y	82,000
Contract B	Retention Basin and Trunk Inlet Drain, Herbert Darling, Williamsville, N. Y.	439,500
Contract C	Easterly Branch Drain to Suffolk Ave., Herbert Darling, Williamsville, N. Y.	375,000
Contract D	Northerly Branch Drain to Minnesota Ave., John Schultz, Buffalo, N. Y.	329,000
Contract E	Winspear Ave. Branch Drain, Herbert Darling, Williamsville, N. Y.	190,000
Contract F	Bailey Ave. Branch Drain, John Schultz, Buffalo, N. Y	91,500
Contract G	Southerly Branch Drain to Kensington Ave., Wm. W. Kimmons & Sons, Kenmore, N. Y.	187,500
New Catch-Basins and street inlets		37,000
Fence and Landscaping		10,000
Total Project Cost		$1,794,000

water level rises above this height, the regulator closes and reduces flow that will pass, backing up excess water to overflowing at the weir at E. Amherst Street.

Top of tipping gates at Minnesota Avenue and at E. Amherst Street as well as lower edges of regulators are set at maximum level which will be reached during a storm of "six times a year" frequency. At overflow chambers this corresponds roughly to a flow equalling 40-45 times average DWF.

With these control devices, it is possible to retain full flow in the Bailey Trunk for all storms up to those occurring not more than six times a year on the average and still relieve the sewer of all excess water from heavy storms.

Overflow, moreover, during the "six" storms—that will cause discharge of excess water to the retention basin—will start at a later time than without control devices, thereby causing a substantially larger amount of possible "suspended sedimentation" to find its way past the overflows while a correspondingly lesser amount will reach the basin.

With the control devices installed, the total time overflows will operate has been estimated as about twelve hours in an average year.

All overflows discharge into a main drain that empties into the retention basin.

Quarry site eliminates excavation

Located in a 12.5-acre southeasterly portion of an abandoned quarry, the retention basin not only makes excellent use of a natural site but also incurred minimum cost for excavation. Removal of about 15,000 cu. yd. of loose rock was, however, required to clear the site.

While the larger part of inclosure circumference is formed by the existing rock face, the northwesterly portion is closed by a reinforced concrete wall. Another RC wall, the top of which is three feet below the NW wall, divides the basin into inner and outer sections.

Quantity of water to be stored temporarily in the retention basin during and after a storm will be the entire runoff from the area served, minus undiverted, existing-sewer carry-off. The quantity to be stored will, therefore, depend not only on amount of precipitation but also on distribution of storm intensities. The higher the storm intensity, the larger will be the proportion of runoff entering the basin.

Required storage capacity was determined on the assumption that the largest amount of precipitation on record for a 24-hr. period (4.25 in.) will be distributed at the highest intensities for various durations recorded since establishment of the Buffalo Weather Bureau station, 80 years ago. On this basis, required capacity amounts to 2,225,000 cu. ft.

Capacities of the inner section and the entire basin are 700,000 and 2,350,000 cu. ft. respectively.

These capacities are measured below tops of inclosing concrete walls. The possibility exists that actual required storage will exceed calculated amounts, due either to extraordinary record-reaking rainfall or inaccuracies in run-off calculations.

In either case no particular damage will be done if the retention basin should overflow as a very substantial "reserve capacity" in excess of 2,000,000 cu. ft. is available between the top of the inclosing wall and top of the flood-proof section of the pumping station.

The inner basin is designed to confine all runoff from less severe but fairly frequent storms. It is estimated that its capacity is sufficient for all storms up to and including one-year frequency.

Arrangement of the two basins is intended to make cleaning operations easier by confining more numerous fillings to the inner section. It is anticipated that very little sedimentation will occur in the outer section. The reasons are: Settling of solids in the inner basin; and the probability that water entering during heavy storms will be cleaner and less polluted than the more frequent runoff received during less severe storms.

In addition to sewage matter, street washings will be deposited in the basin.

To wash deposits out, a flushing system consisting of 3-in. water pipe with valved hose connections is provided on the perimeter of the inner basin.

Although the highest possible water level is 14 ft. below the 6-in. water-supply line, double check valves are installed as added protection against contamination of supply.

It is anticipated that the basins will be normally dry, except for infiltration, and free of any nuisance conditions.

Basin dewatered by pumping

Storm water temporarily stored in the basin is returned to the trunk sewer system through a pumping station located adjacent to the south quarry face on E. Amherst Street.

The flood-proof pumping station is designed to accommodate a maximum water level in the retention basin, one foot above the overflow weir at E. Amherst Street. It is impossible to conceive of this level being approached except if both pumps were out of order for a prolonged period.

A monorail hoist in the pumping station will facilitate repairs as well as removal of debris that collects in suction well.

The station is heated by an oil-burning furnace. Thermostatic heat controls maintain temperature above 50 deg. F.

A fan-driven ventilating system will purge lower rooms in the pumping station of accumulated gases as well as dry atmosphere to prevent moisture-induced damage to equipment.

Pumping equipment includes: Two 16-in. vertical volute pumps, each with a capacity of 6,750 gpm. against a 36-ft. total dynamic head. Pumps are driven by electric motors.

Both pumps draw from a suction well, sufficiently deep to permit retention basin to be completely drained.

Pump operation is controlled by water levels in the suction well and in the E. Amherst overflow chamber. Float switches at both points make pump operation possible only when: Flow in Bailey Avenue sewer is less than 1.5 ft. deep; and water level in suction well is above El. 43.5, the "pump start" elevation being El. 47.5 ft. Pumps continue to operate until either water in the suction well is drawn down to low level or water surface in Bailey sewer rises to control point. Either occurrence will shut pumps off.

The electrical connection extending 2,760 ft. between pump station and E. Amherst chamber is located in a conduit rented from the telephone company.

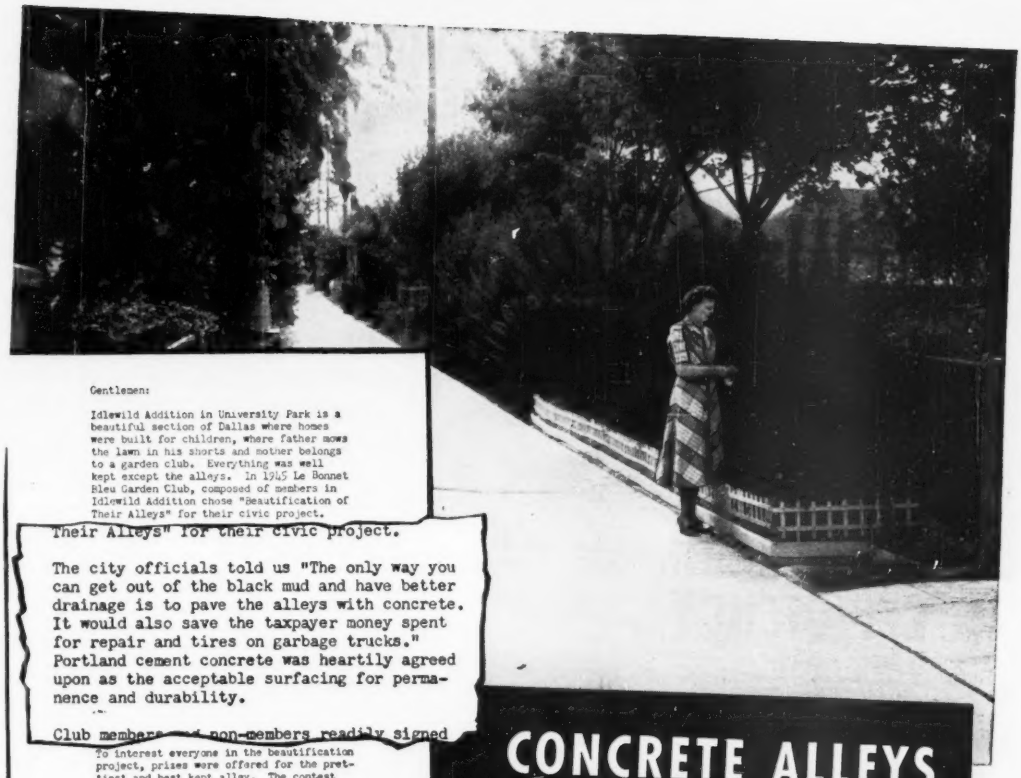
Only one pump will operate at a time. Alternation of pump operation is by manual control. By continuous pumping, the inner basin will be emptied in about 18 hours and the inner and outer basins when filled will be dewatered in about 60 hours.

Discharge from pumps is conveyed through a 24-in. connection to an existing 30-in. sewer in E. Amherst Street through which flow is returned to the Bailey Avenue trunk sewer.

Plan output governed construction

Because of the pressing need for storm-flooding relief in the Bailey-Kensington area, it was decided to initiate construction as rapidly as plans could be completed. This decision was carried out by breaking the project down into moderate-size contract units. The contract subdivisions are listed with costs in Table II.

Conception of the project and preparation of plans and specifications for the storm-water retention project were made by the Buffalo Sewer Authority's designing engineers.



Gentlemen:

Idlewild Addition in University Park is a beautiful section of Dallas where homes were built for children, where father mows the lawn in his shorts and mother belongs to a garden club. Everything was well kept except the alleys. In 1945 Le Bonnet Bleu Garden Club, composed of members in Idlewild Addition chose "Beautification of Their Alleys" for their civic project.

Their Alleys" for their civic project.

The city officials told us "The only way you can get out of the black mud and have better drainage is to pave the alleys with concrete. It would also save the taxpayer money spent for repair and tires on garbage trucks." Portland cement concrete was heartily agreed upon as the acceptable surfacing for permanence and durability.

Club members and non-members readily signed

To interest everyone in the beautification project, prizes were offered for the prettiest and best kept alley. The contest ended in great triumph. It has not only enhanced the value of our property but our children have taken over the clean, traffic-free alleys for a playground.

Yours for cleaner and better kept alleys the nation over,

Most sincerely

Mrs. Don M. Caphton

Mrs. Don M. Caphton

1113 Hanover Street
Dallas 5, Texas

CONCRETE ALLEYS

...mighty popular with taxpayers

When the Garden Club of Idlewild Addition to University Park, in Dallas, Texas, chose the beautification of local alleys as its civic project, members found property owners enthusiastic. As Mrs. Don M. Caphton, the civic chairman, outlines in her letter reproduced above, it was no time at all until all the alleys in Idlewild Addition—except those in four business blocks—were paved with concrete.

After getting the whole community "out of the black mud" these concrete alleys led to many special landscaping projects and beautification contests, thereby furthering the widespread interest in alley improvement.

A concrete alley cleans up the whole block. It ends the dangerous filth that collects and multiplies in unpaved alleys and eliminates breeding places for disease-carrying insects.

Concrete alleys promote the well-being of the entire community and increase property values —usually far beyond the cost of the paving itself. Write for free illustrated folder on alley paving. Distributed only in U. S. and Canada.

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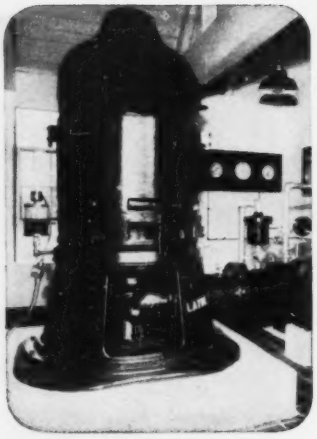

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It is good business to make high efficiency a yardstick in buying a well water system. It is good to know that from Layne you automatically obtain the high efficiency that continually keeps your water production and upkeep at rock bottom cost. For further information, catalogs, etc., address LAYNE & BOWLER, INC., General Offices, Memphis 8, Tenn.

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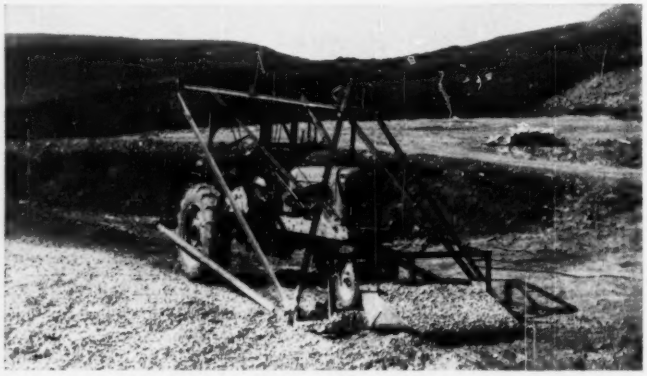
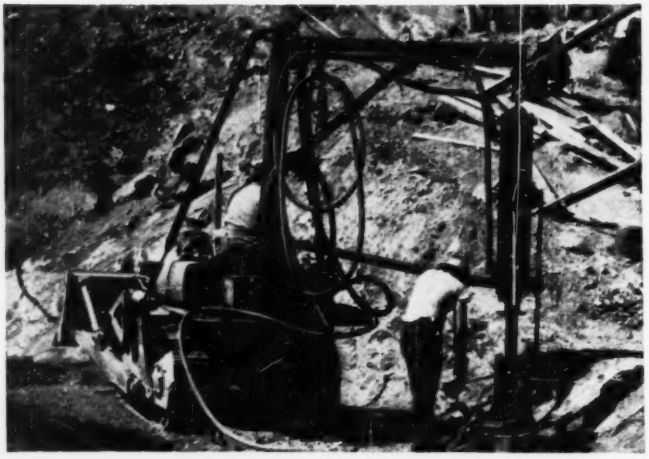
FIELD AND OFFICE



AGGREGATE LOADER was made from farm equipment by Doncaster Construction Co. Ltd. for use on concrete footings on the St. Mary-Milk River project in Alberta, Canada. Farm tractor mounts a farm-type hydraulic lifting mechanism to load aggregate directly into the mixer.



MANEUVERABLE COMPACTION UNIT—Effective compaction of the edges of the Davis Dam fill was accomplished by mounting a shoe-equipped paving breaker on a small tractor (Caterpillar D3). This equipment was able to reach areas that sheepsfoot rollers couldn't and results were good.

A flat steel plate about 18 inches square serves as the striking area of the shoe (left). T. L. Terry, general superintendent and H. K. Thiesen, master mechanic, for Utah Construction Co., contractor on the job, devised the unit and supervised its fabrication by equipment maintenance workers in the job shops.

GMCs "Deliver the Goods"

Food, furniture and fuel oil . . . the tree, the turkey and the toys . . . almost everything that moves by motor truck makes its contribution toward a Merry Christmas.

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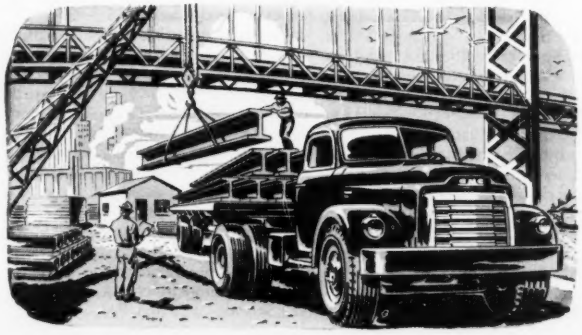

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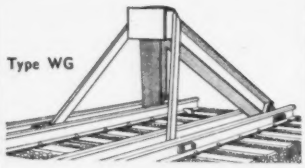

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DEVELOPMENTS ABROAD

AMERICAN EQUIPMENT IN INDIA—Pictured are 13 of a fleet of American-made hopper dump wagons which will soon shift from work on access roads to the task of hauling fill for the Hirakud Dam. Buildings in the rear are repair shops.

India's Biggest Dam

With railroad spurs and bridges, access highways, housing arrangements and maintenance facilities nearly complete, construction of the biggest dam yet undertaken in India will begin in a few months. It will be a three-mile earthwork and concrete structure across the Mahanadi River at Hirakud, seven miles from Sambalpur in Orissa Province. Ten miles of dikes will stretch out along the sides.

John L. Savage was the consulting engineer on the project, which calls for two other dams to be built later further downstream. The Hirakud Dam will eventually cost some $100 million when the cost of a $350,000-kw. hydro-electric station is included. The earthen section will be about 10,700 ft. long, the cement spillway section about 5,000 ft. Height will be 132 ft. above deepest streambed, and the dam impound 5.30 million ac. ft. gross storage drawn from a 32,200-sq. mi. catchment basin. It will irrigate more than 1,000,000 acres of farmland, thus boosting food output in the area by some 400,000 metric tons a year.

Highways

Puerto Rico—The first part of one of the major urban thoroughfares in the metropolitan area of San Juan constructed by the Insular Department of the Interior has just been opened to traffic. Assistant Commissioner of the Interior J. B. Castano says that this road is the first project of the master plan of major urban thoroughfares for the metropolitan area of San Juan constructed with federal aid. It is in the vicinity of Rio Piedras, and connects San Juan with the town of Carolina. The project consists of asphalt macadam. This thoroughfare has a right-of-way of 120 ft., with roadways 70 ft. wide. Sidewalks have been constructed on each side of the road. The estimated cost of the project is $322,828, including the right-of-way. The construction job costs about $245,000. Construction engineers for this project are Zequeira and Pinero. Other parts of this major thoroughfare will be constructed in the near future under the plan for major thoroughfares approved recently by Governor Luis Munoz Marin for the San Juan area. They will cost over $15,000,000.

Technical Study

El Salvador—Salvadorean engineers and scientists of the Armour Research Foundation, Chicago, will work together in a technical study for development of that Central American country. The investigation was requested by Manuel Enrique Hinds, Minister of Economy, and authorized by a government decree.

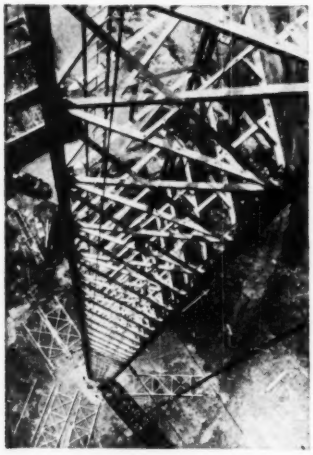
The foundation has successfully conducted similar surveys in Mexico and Argentina, resulting in definite development programs.

A four-month technical survey for El Salvador will include:

1. Evaluation of existing industries and economic factors relating to them.
2. Study of technical education that would be of most value to the country.
3. Finding specific means to improve industries and production.
4. Suggesting most promising ways to use natural resources, including new industries.
5. Study of import and export of merchandise to improve commerce.

F. W. Godwin and Haldon A. Leedy of the foundation recently toured Latin America and discussed applied research for economic development with government leaders. Technological auditing, according to Godwin, is the logical first step of a country's development program, since it includes specific needs and suggestions which a government can use in making subsequent decisions.

Messrs. Godwin and Leedy believe that Latin American countries want practical and concrete technical help to develop specific natural resources into marketable products.



750-FT. TELEVISION MAST—The tallest television mast in Britain, to rise to a height of 750 ft. and weigh upwards of 90 long tons, is to pivot on a ball bearing just 2 inches in diameter. To allow for "give" in a high wind, the shaft rests on a specially curved base plate in the center of which is the bearing. Designed by British Insulated Callender's Construction Co. Ltd., for the British Broadcasting Corp., the mast is being built at Sutton Coldfield, near Birmingham. To serve a population of over 6,000,000, it will transmit programs relayed from London. Picture shows: Left, view from a perch up on the rising television mast. On the ground the next sections await hoisting. (Eastern Pub. Service Photo)

Australia tests Aluminum

Because of the world shortage of steel, aluminum alloys are being tested in Australia. It is reported that aluminum alloy tubular scaffolding has responded well to exhaustive tests in Sydney and elsewhere in the commonwealth.

Tests conducted at the Commonwealth Building Experimental Station at Ryde, New South Wales, showed that the tubing could withstand up to 14 times the load allowed by the various regulations.

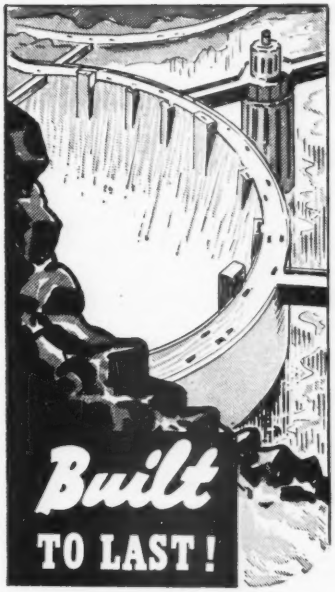
Foreign Briefs

Irrigation—The $13,000,000 Kodapara irrigation project near Bombay, India, has been inaugurated. The project, which is the first stage of the Tapti Valley development scheme, will irrigate 500,000 acres in the Surat district. It is expected to increase food production by 150,000 tons, beside helping to produce 16,000 tons of cotton. It calls for the construction of a weir 24,000 ft. long and 45 ft. high across the Tapti River.

U. N. Addition—The building committee of the World Health Organization has agreed to an addition to the United Nations' European office building at Geneva, Switzerland, which will be six stories high, with strengthened foundations capable of supporting further additions. However, at present the Swiss government objects to any "skyscraper" construction.

French Visitor—Raymond Louis Giguet, a director of Electricite de France, the French government-owned power company, is in this country for a month's study of American methods of producing and distributing electricity. He is here under an ECA technical assistance project. Mr. Giguet's study is designed to help his company accelerate its construction program.

Power Project—In Brazil, the Companhia Hidro-Electrica do Sao Francisco has made an agreement with the Westinghouse Electric International Co. for the purchase of equipment for the first of five power stations that will cost $4,209,000. Ultimately, each of the five stations will have a capacity of 180,000 kw. As a result of this construction, lower cost electric power and the creation of a new industrial and agricultural section in northeastern Brazil are foreseen. The power generated on the Sao Francisco River will be shared by the states of Alagoas, Sergipe, Bahia, Pernambuco, and Paraiba.



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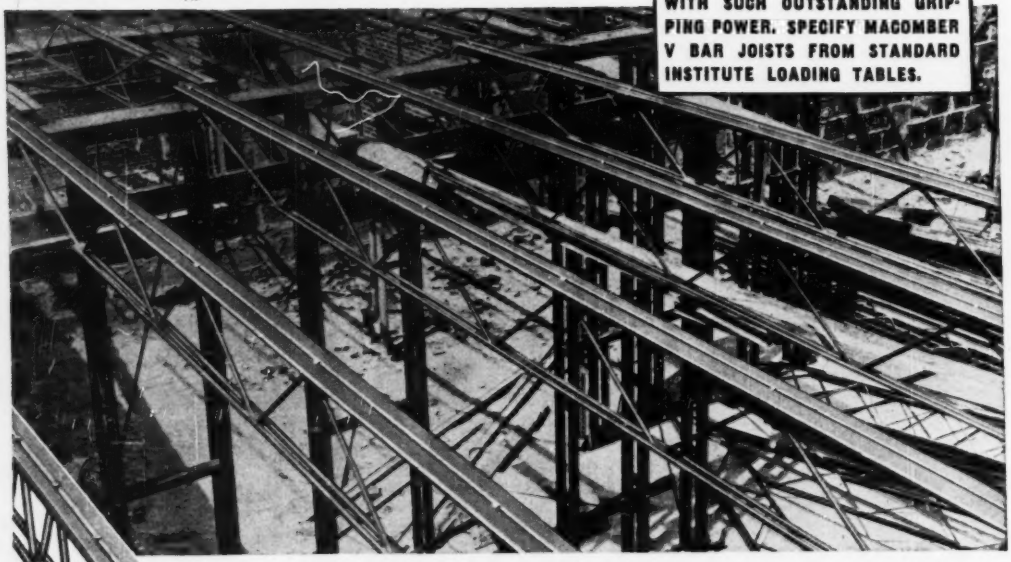

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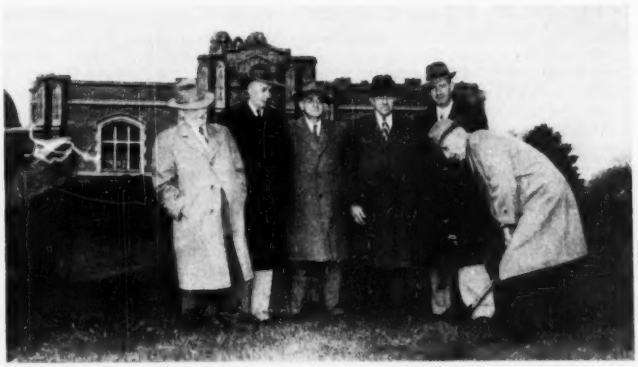

FILTER PLANT STARTED—Cedar Rapids, Iowa, recently broke ground for an addition to its water filter plant. The general contractors on the $563,123 construction are Greene & Gust Co., Chicago. The designers are Alvord, Burdick & Howson, Chicago. Present plant has a capacity of 12 mgd. The new plant will add two rapid mix basins, two slow mix basins, two clarifier basins of 1,000,000-gal. capacity each, and four rapid sand filters each having a capacity of 3 mgd. at a filter rate of two gal. per sq.ft. a minute. In the picture, left to right, are: R. C. Jones, commissioner of parks; Gordon Hughes, commissioner of public safety; L. D. Burges, commissioner of accounts and finances; H. F. Blomquist, retiring superintendent of Water Works; Leo Louis, present superintendent; and Mayor F. K. Hahn.

Industrial Air Pollution

A cooperative attack on air pollution in the industrial section of Cleveland, Ohio, will be made through the joint efforts of the Weather Bureau of the U. S. Department of Commerce, eight major industrial plants, and the air pollution control division of the city health department.

A meteorological survey will be made to determine how much of the pollution is due to weather conditions, including air turbulence, wind velocity, and temperature changes. Automatic recording instruments will be set up at several locations in and near the industrial Cuyahoga River Valley district, and also at stations set up over a wider area.

Regarding the survey, to start next April and last for a year, H. G. Dyktor, city commissioner of air pollution control, said, "Instead of trying to analyze the situation by nose or ear, we will be able to approach the problem from a factual viewpoint, a study made possible only because of the cooperation of industry."

The eight industrial plants in the study are the Republic Steel Corp., Jones & Laughlin Steel Corp., American Steel & Wire Co., Standard Oil Co. of Ohio, E. I. du Pont de Nemours & Co., the Harshaw Chemical Co., in the valley; the Glidden Co., on the West Side, and the Willard Storage Battery Co., on the East Side.

Houston Area Housing

In greater Houston, Tex.,—the area in the present city limits and all the built up sections which adjoin the city—50,142 home units have been built since the beginning of 1946, and practically all of them are occupied.

This great homebuilding program has amounted to more than $500,000,000 in the last three and a half years, and has provided modern homes for about as many people as lived in Houston 25 years ago.

New streets have been built—553 miles of them—sewerage lines have been constructed to each door, and light and telephone wires and water mains have been provided to serve the whole new population.

N. Y. State Arteries

Studies of arterial street systems are well advanced in 61 upstate New York cities, and plans have been completed and presented for community approval in 21 cities.

This was brought out by Lacy Ketchum, district engineer for the State Department of Public Works, at a recent meeting of the state association of municipal engineers in Utica.

Some of these arterial streets the state proposes to develop in cities, Mr. Ketchum said, will be four-lane with provision for parking, and built for maximum safety.

The speaker gave the engineers assurance that there will be an equitable distribution of funds for such projects, regardless of the present state of planning for each community.

Indianapolis Building Boom

Construction in the metropolitan district of Indianapolis, Ind., will be well beyond $70,000,000 in 1949—an all-time record.

Building permits in the city and in Marion County are nearly $11,000,000 higher than at the same time a year ago.

Homebuilding alone in the county outside the city has amounted to $12,000,000 for the first 10 months of this year.

Municipal Briefs

New Incinerator—The advice of the Erie County chapter, Society of Professional Engineers, is to be sought by Buffalo, N. Y., in connection with a proposed new incinerator. Information is wanted as to the need, location, size, and cost of the incinerator and whether is should be of the rectangular or cylindrical type.

Provincial Help—Sixteen municipalities in Ontario, Canada, have made application to the provincial government for $2,500,000 of assistance in sewer and waterworks construction since the government's plan for financing such projects was announced. A special government corporation with a capital of $50,000,000 has been set up for this purpose.

Building Code—The city planning commission of Peekskill, N. Y., has retained J. Wilbur Irish, consulting engineer, to study and revise the local building and plumbing codes for future consideration.

Slum Clearance—The aldermen of St. Louis, Mo., have turned over to the local housing authority the city's slum clearance program under the new federal housing act. Already almost 6,000 units of new construction have been authorized under the public housing portion of the act.

Parking Lots—Assured of financial backing, the Elmira, N. Y., Parking Authority and the off-street parking committee of the Elmira Association of Commerce has signaled full speed ahead on a program to acquire and develop off-street parking lots in the business area. The parking authority has authorized the Association of Commerce off-street parking committee to act as its agent in negotiations with owners of the proposed parking sites, and with local banks on a plan to finance construction of the lots.

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MEN AND JOBS

Appointment of **Louis F. Warrick** to the Public Health Service, Federal Security Agency, as senior sanitary engineer in charge of an extensive water pollution control research program is announced. He will be with the nationwide program being conducted by the Public Health Service to alleviate water pollution. As chief of the technical services branch of the water pollution control division, Mr. Warrick will work with other Federal agencies concerned with water pollution control, and with state, educational, private and industry groups. He is a graduate of Cornell University, where he received a master of science degree in sanitary chemistry and engineering. For the last 24 years Mr. Warrick has been with the Wisconsin State Department of Health, latterly as director of the bureau of sanitary engineering.

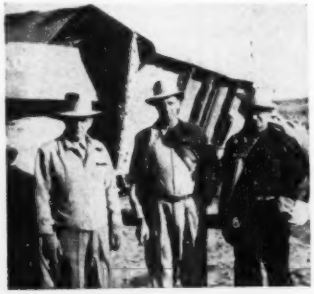
Connecticut State Highway Commissioner G. Albert Hill has appointed four engineers to head districts being set up under reorganization plans, each with an engineering staff and work crew. **Edward S. Lawlor,** New Milford, contracts engineer, will head the West district—Litchfield County, Hartland in Hartford County; Waterbury, Middlebury and Southbury in New Haven County; and Sherman, New Fairfield, Brookfield, Danbury, Bethel, Newtown, Ridgefield and Redding in Fairfield County. **Edwin B. Burdick,** Glastonbury, superintendent of bridges, will head the North Central district—Hartford County except Hartland; Wolcott and Meriden in New Haven County; Cromwell, Middlefield, Middletown and Portland in Middlesex County; Somers, Stafford, Union, Killington, Tolland, Coventry and Mansfield in Tolland County; and Ashford in Windham County. **Howard S. Ives,** North Stonington, project engineer, will head the East District—remaining towns in Tolland and Windham counties; New London County and East Hampton, Haddam, East Haddam, Chester, Deep River, Essex and Old Saybrook in Middlesex County. **Elwood T. Nettleton,** Hamden, head of the safety division, will head the South Central district—remaining towns in Middlesex, New Haven and Fairfield Counties from Westbrook to Greenwich, and north to West district and North Central district.

Charles G. Ashby, former district engineer for the North Carolina Highway Department at Elkin, N. C., has been transferred to North Wilkesboro, as office engineer for the 8th Highway division, and **J. Frank Bivins** has succeeded him as district engineer at Elkin.

Kenneth Anderson is now field chief of the survey branch of the construction division of Garrison Dam, N. D.

Dwight F. Metzler is director of the division of sanitation of the Kansas State Board of Health. He is graduate of Kansas University and has a master's degree in sanitary engineering from Harvard. Chief of the new general sanitation section is **Ivan F. Shull,** a graduate of the University of Kansas with a M.S. degree in public

Sanitation experts on an inspection of river conditions for The Ohio River Valley Water Sanitation Commission: In the usual order, F. H. Waring, chief engineer of the Ohio state health department; Earl Devendorf, chief engineer, N. Y. State Health Department; and J. J. Woltmann, consulting engineer of Bloomington, Ill.



With almost half of their 15-million yd. of excavation for Stage I embankment at Garrison Dam completed this season, the contractors take time off for an ENR photo. Shown are W. B. Miller and Joe Carter, co-project managers for Garrison Builders, Inc., and D. C. Jordan, their office manager.

health from the University of Michigan. Chief of the water supply section is **Russell Culp**, who has been in engineering work in the state for the last 11 years. **Gordon E. Mau**, is chief of the water pollution control section. He is a C.E. graduate of Iowa University and has had a M.S. degree in sanitary engineering from Harvard.

Louis Bryant Tuckerman has retired after 30 years service on the research staff of the National Bureau of Standards. Dr. Tuckerman is internationally known for his extensive contributions to the mechanics of materials and structures. In a letter from President Truman he was commended for his outstanding scientific achievements.

Col. M. D. Weinert has been named chief of Army military construction engineering. He succeeds **Col. Donald S. Burns** who is being transferred to Portland, Ore., as district engineer.

Lieut. Col. J. P. Campbell, assistant Great Lakes division engineer of the Corps of Engineers, has been named Chicago district engineer to succeed **Col. W. P. Trower**, who becomes head of the engineers' procurement office at Chicago.

Arvon L. Davies, formerly with the Raymond Concrete Pile Co., has been appointed assistant to the president of Merritt-Chapman & Scott Corp.

Hiram Dennett Jones has been named safety director of the North Carolina State Highway and Public Works Commission. He succeeds **James P. Dodge**, made administrative assistant to Chairman Jordan. Mr. Jones is a graduate of Virginia Polytechnic Institute.

John D. Eye, who received a master of science degree in sanitary engineering from Virginia Polytechnic Institute in 1949, is now a full time lecturer in civil engineering at the University of Southern California.

Kenneth C. Lauster, former director of the division of sanitary engineering for the North Dakota State Health Department, has been named chief engineer of the North Atlantic Drainage Basin in the Public Health Service's water pollution control program. He will be stationed in New York City. Parts of New York, Vermont, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, West Virginia and the District of Columbia comprise the basin.

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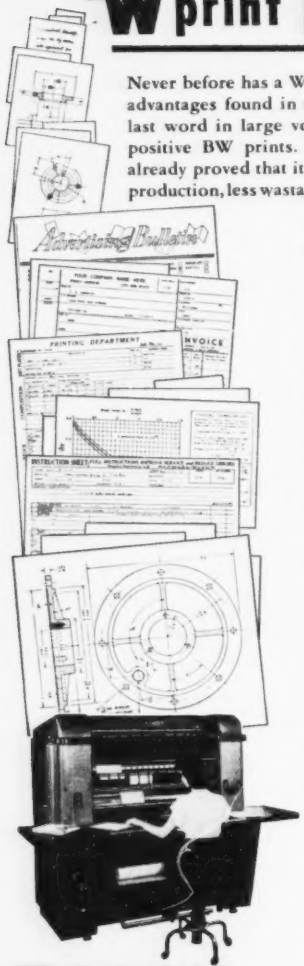

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OBITUARY

John W. Van Atta, 48, of Hackensack, N. J., executive vice-president and general manager of the Ralph B. Carter Pump Co., manufacturers of pumps and sanitation engineering equipment, died Dec. 7. For many years he was well known in the construction and municipal engineering fields. He was a director of the Water and Sewage Manufacturers Association.

Charles E. Miller, 55, sanitary engineer for the federal government, died Nov. 27. During the war he was in control of the water supply at Fort Lewis, Wash.

Ralph Walling, 67, expert in the design of blast furnaces and an engineer for Arthur G. McKee & Co., Cleveland, for the last 13 years, died Dec. 2. He was a graduate of Case Institute of Technology.

Delbert B. Sayers, 73, chief engineer for Upper Arlington, Ohio, from 1922 to 1946, died Dec. 4. He was a graduate of Ohio State University.

Percival Richard Bowers, 76, a retired civil engineer, formerly of Nashua, N. H., died Nov. 13, at Fort Lauderdale, Fla.

Robert D. Cameron, 63, engineer in charge of Barge Canal operations in most of the Mohawk Valley, N. Y., State, died Nov. 20 in Rome, N. Y. An engineer in the New York State Department of Public Works for 41 years, Mr. Cameron was associate civil engineer in charge of the canal and its reservoirs in District 2. He had worked on the canal from its origin, nearly 40 years, and had been in charge of several phases of its construction. He formerly was engaged in state highway construction. Mr. Cameron was a graduate of New York University and studied at Cornell and Colgate universities.

Charles Church More, 74, head of the department of civil engineering at the University of Washington for eight years, died Nov. 20 at Seattle. He received his master's degree in civil engineering at Cornell in 1899, after graduation from Lafayette College, and spent six years in construction work before joining the University of Washington faculty. He headed the civil engineering department from 1917 to 1925, when he was made pro-

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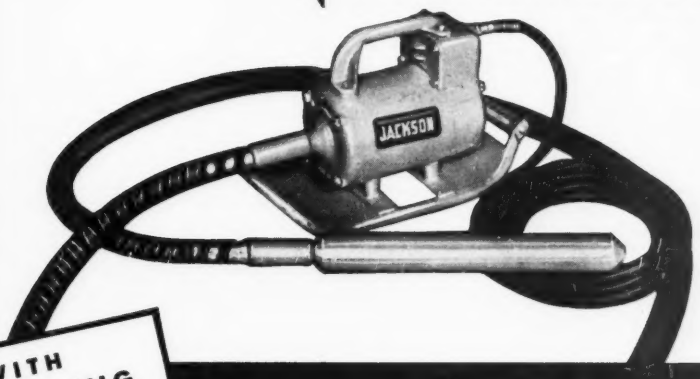
FLEXIBLE-SHAFT CONCRETE VIBRATOR



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POWER GALORE: 2½ HP (continuous duty rating) Universal Motor provides more than ample power for uninterrupted placing of the stiffest mixes using the maximum length of shaft.

LIGHT SOCKET OPERATION: Wherever either 115 volt, 60 cycle single phase AC or Direct Current is available this relatively inexpensive vibrator will do a bang-up job of concrete placement.

HIGH FREQUENCY — 3 VIBRATOR HEADS: 8,000 to 10,000 VPM and availability of three vibrator heads assure rapid as well as thorough consolidation of the stiffest mix concrete under all conditions.

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GRINDING: Countershaft attachment for quick conversion to wet or dry concrete rubbing.

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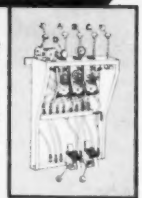

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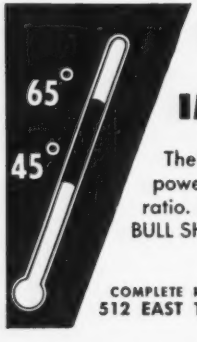

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fessor of structural engineering, a position he held as emeritus for the last few years. The university's civil engineering building, recently completed, is named after him.

John Tucker, Jr., 69, engineer and chief of the concreting materials section in the Bureau of Standards mineral products division, died Nov. 18 in Washington, D. C. Mr. Tucker was a graduate of Stevens Institute of Technology, Hoboken, N. J., and was a member of the Washington Academy of Sciences.

Henry A. Soule, 80, retired civil engineer for the New Haven Railroad, died at Braintree, Mass. recently. He had been with the railroad for 46 years, having retired in 1947.

Clarence Blakely Long, 49, civil engineer for the South Carolina Highway Department for 18 years, died in Abbeville Nov. 28.

H. Douglas Howell, 39, Georgia State Highway Department engineer, died Nov. 29, in Atlanta.

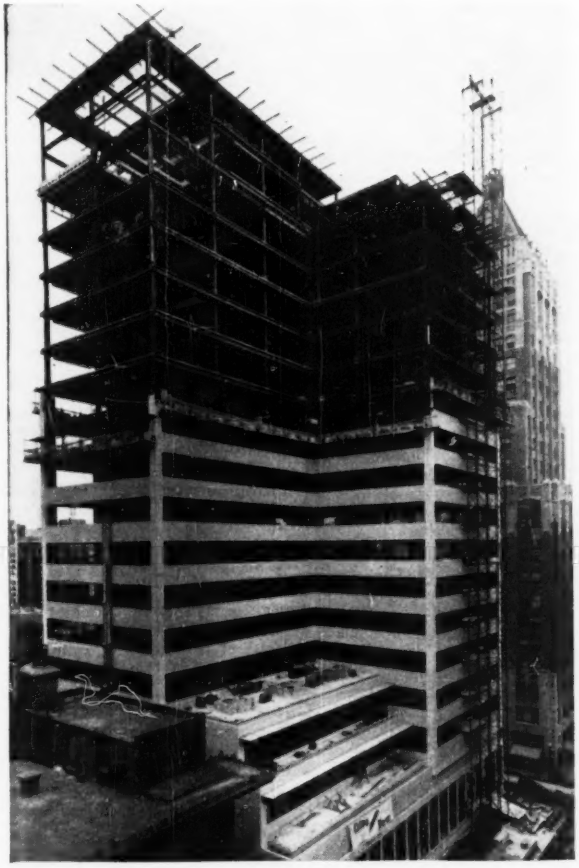
J. Henry Schoenheit, 80, for many years a building contractor in Rochester, N. Y., died Nov. 30. He erected several of the city's large buildings. Prior to operating under his own name, he was with F. H. Rapp & Co.

Daniel J. Ryan, 87, president of Ryan & Ryan, Inc., Rochester, N. Y. contracting firm, died Nov. 29. He organized the firm in 1921 and was active as its president until a few months ago.

Witt W. Hadley, 66, for 30 years bridge construction engineer for the Indiana highway commission, died Dec. 3 in Indianapolis. He had retired from the department last June. A graduate of Purdue University, he was with the civil engineering department of Indianapolis for several years. He supervised the construction of the George Rogers Clark Memorial Bridge over the Wabash River at Vincennes, the Ohio River bridge at Evansville, Ind., and a long highway span at Hammond.

Roland G. E. Ullman, 61, a civil engineer, died Dec. 1 at Swarthmore, Pa. He received a degree in engineering at the University of Colorado and later did graduate work at M.I.T. and at the University of Pennsylvania's Wharton School. He was a practicing civil engineer for eight years, his work extending from the Arctic to Yucatan. He served in both world wars.

New Bank Building Rises on Tulsa Skyline



Tulsa's new 20-story First National Building promises to be one of the city's most impressive structures. It is to contain shops on the street level, a spacious lobby, a mezzanine, four stories devoted to banking facilities, fifteen stories of office space, and a penthouse. It will have eight elevators, and its escalators will be capable of handling up to 5000 people per hour.

The air-conditioned structure occupies a 100 ft x 140 ft corner plot and contains both a basement and sub-basement. The first-floor interior columns are to be covered with stainless steel. The second story will be faced with fixed glass and Georgian marble, and gray glazed brick, with marble trim, will be used for the remainder of the building.

Construction of Tulsa's attractive First National Building called for the fabrication and erection of 2889 tons of steel, all of which was handled by Bethlehem.

Architects: Carson & Lundin, New York.
Consulting Engineers: Edwards & Hjorth, New York.
General Contractor: Manhattan Construction Co., Muskogee, Okla.
Owner's Representative: John W. Harris Associates, Inc., New York.

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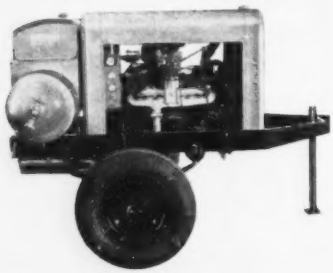

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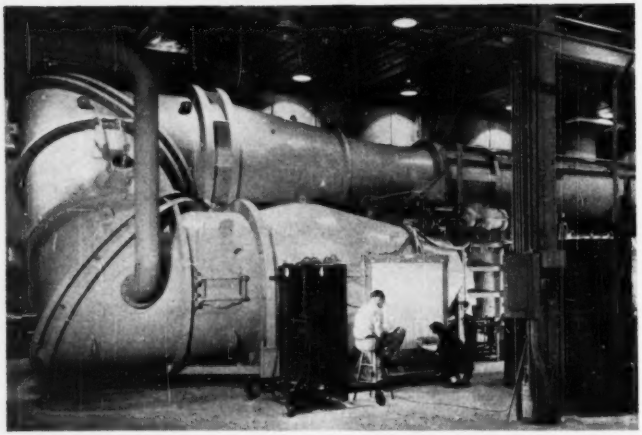

RESEARCH WIND TUNNEL—With the completion this month of the Naval supersonic laboratory at the Massachusetts Institute of Technology, this large wind tunnel was put in operation at a speed twice that of sound. It is designed to provide speeds ranging from ¼ to 4 times that of sound—up to 3,000 mph. The wind tunnel, largest in any American college or university, was built under the auspices of the Navy Bureau of Ordnance. In the picture two graduate students read the tubes used to indicate air pressures at various points throughout the tunnel.

Engineering Employment

American colleges and universities this year turned out the largest number of engineering graduates in the history of engineering education—and more than 90 percent of them are employed.

According to Dean Thomas H. Evans of the engineering division of Colorado A&M College, here's why such a large number found jobs:

The great increase in the use of engineers by government agencies, particularly the armed forces; the continually increasing complexity of technology; wartime experience which demonstrates the value, and in many cases the necessity, of engineering services; the increasing intensity of competition in business, which creates a need for continually increasing efficiency in the use of manpower, materials, power and equipment; the growing need for the use of research by industry and government; and the tendency for engineers to develop new processes and services which create needs for new kinds of engineers and technicians.

Placement of graduates this year has been somewhat slower than in the last two years, when positions greatly exceeded graduates. Engineering may have an even harder time absorbing graduates during the next four years.

A great many of the estimated 45,000 engineering students who will be graduated next June will have to "exercise some ingenuity" if they hope to obtain jobs, several dozen engineering professors were told at a recent meeting in Rochester, N. Y.

Members of the American Society of Engineering Education, Upper New York Section, heard John H. Howard, business and technical personnel director of Eastman Kodak Co. speak on "Aspects of Graduate Employment."

Howard cited a steady drop in the demand for engineering graduates since shortly after the war ended. The number of 1949 graduates employed by the company was only 50 per cent of those of the class of '48 engaged, he said.

Coordinate N. W. Research

An intercollegiate organization to coordinate industrial and engineering research in colleges and universities of the Pacific Northwest has been organized with Prof. F. B. Farquharson, director of the University of Washington Engineering Experiment Station, as temporary chairman. Prof. Warren W. Philbrick, assistant director of the station, is temporary secretary.

The organization includes representatives from the Montana School of Mines, Montana State College, Washington State College, the British Columbia Council, Oregon State College

and the Universities of Washington and Idaho. It will seek recognition as the Pacific Northwest Section of the Engineering College Research Council.

Educational Notes

Research funds–M.I.T. has received $250,000 from the Standard Oil Co. of California for the support of the institute's research program. Iowa State Highway Commission has granted $10,800 to Iowa State College to study methods of seeding along highways to prevent erosion.

Scholarships – Chicago Community Trust has allocated $25,000 for engineering education and Illinois Tech is one of five engineering colleges to share the trust's annual graduate and under-graduate scholarship grants.

Science Building–The University of Chattanooga, Tenn., has dedicated its new science building, which is to be known as "Brock Hall" in recognition of the services and leadership of former U. S. Senator William E. Brock. The four-story building was constructed at a cost of $350,000 and will house the engineering and the physical chemistry departments.

Extension Courses–University of Virginia is preparing a program of evening engineering courses, graduate and undergraduate, at its northern Virginia center at Arlington.

Scientific Laboratories – Ground has been broken for the alumni scientific laboratories at Drexel Institute of Technology, Philadelphia, Pa. Costing $300,000, the labs will be in a 2-story structure with footings designed to permit an additional superstructure later. The space for civil engineering will be doubled.

Research–The North Carolina Engineering Foundation at Raleigh, N. C., elected C. A. Dillon president for the coming year and set itself a financial goal of $1,000,000 for expanding the engineering research and teaching program at North Carolina State College.

Air Pollution Course–The School of Public Health, University of Michigan, on Feb. 6, 7, and 8 will give an inservice training course in air pollution. It will be for air pollution control and other public officials, industrial chemists, managers, health officers, physicians of industrial communities, industrial hygiene personnel, and sanitary engineers concerned with the disposal of industrial wastes.

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Saves breakdowns, too. Just the other day we cleaned a dozer for repairs and found a crack in the frame that we never suspected. Were we glad for Jenny then! A breakdown would have messed up our schedule and cost us wasted man hours.

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Contractors everywhere are turning to the Rogers "Tagalong" for a bigger day's work with maximum economy.

One man can do all jobs. Load and unload trailer, connect and disconnect it; drive truck and operate equipment carried.

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Write for complete information.

Showing cable around sheave and dump body about to be raised to engage towing tongue.

Body elevated. Tightened cable has raised drawbar and engaged towing tongue. Safety coupling pin is inserted. Trailer is ready to roll when body is lowered.

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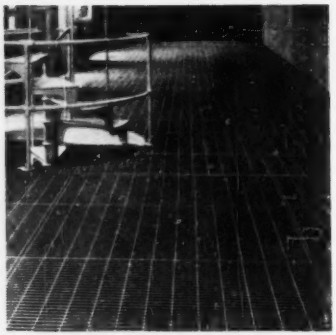

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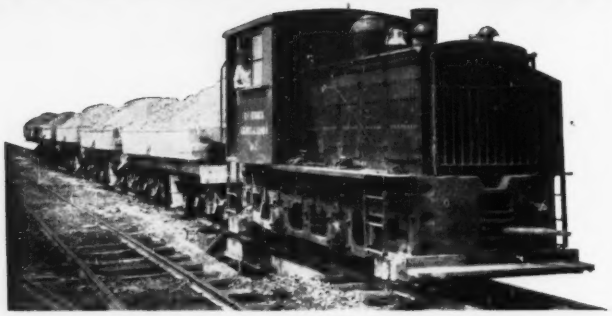
PLYMOUTH Locomotives



Over a period of many years, under all kinds of operating conditions, PLYMOUTH Locomotives have established proved records of dependable performance. Economical to use and economical to maintain, PLYMOUTH Locomotives are built well—and built right—by careful engineering planned to meet exacting requirements in the construction field. We feel sure there's a PLYMOUTH Locomotive to meet your particular needs. Write for complete details today.

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PLYMOUTH LOCOMOTIVE WORKS
DEPT. A-4 PLYMOUTH, OHIO

Elections and Activities

A three-day annual convention of the National Council of State Boards of Engineering Examiners was held in Daytona Beach, Fla., recently. About 100 delegates from each of the 48 states were present. About 50 members of the Florida Society of Professional Engineers were in session at the same time, according to Joe Williamson, president of that group. Prominent engineers and members of State Examining Boards of New York and Georgia addressed the groups.

Harry S. Rogers, president, The Polytechnic Institute of Brooklyn, Brooklyn, N. Y., was elected chairman of the Engineers' Council for Professional Development, a conference body of engineering organizations of the United States and Canada, at its recent annual meeting in Chicago. Dr. Rogers succeeds James W. Parker, president, The Detroit Edison Co., Detroit, Mich., who has been chairman for the last three years. Other officers elected were: Vice-chairman, L. F. Grant, Queen's University and Royal Military College, Kingston, Ont.; secretary, C. E. Davies; secretary, The American Society of Mechanical Engineers; assistant secretary, William N. Carey, secretary, American Society of Civil Engineers.

Sir Patrick Abercrombie, fellow of the Royal Institute of British Architects, and internationally known British architect and town planner, is to be awarded the Gold Medal of the American Institute of Architects. Ralph Walker, New York, president of A.I.A., announced that Sir Patrick was selected by unanimous vote of the directors. The Gold Medal highest honor The Institute can bestow, will be presented at a ceremony following the annual dinner held in connection with the 82nd A.I.A. Convention in Washington, D. C., next May 10-13.

Sir Patrick, who is the sixth foreign architect to receive the Gold Medal of the A.I.A. since 1906, is an outstanding architect, town planner, writer, and teacher. His replanning for Dublin, Bath, and Greater London have been especially noteworthy. He was professor of civic design for twenty years at Liverpool University and for the last eleven years has been professor of town planning at the Bartlett School of Architecture, University College, London.

A. E. Williamson, Jr., Daytona Beach, Fla., has been reelected secretary of the Florida Water Works Association, S. K. Keller, Clearwater, was elected president.

An organization of structural engineers has been formed at Portland, Ore., to coordinate the work of architects and builders and to study building codes and like problems. The group, known as the Structural Engineers Association, follows the line of a similar organization formed in California. The Portland association has 18 charter members. J. A. McDevitt is president, Robert L. Tidball is vice president, and Rowland Rose, secretary.

MAJOR MEETINGS

Canadian Construction Association, Mount Royal Hotel, Montreal, Que., Jan. 15-18.

American Water Works Association, N. Y. Section midwinter luncheon, Hotel Statler, New York, N. Y., Jan. 17.

American Society of Civil Engineers, annual meeting, Commodore Hotel, New York City, Jan. 18-20.

Associated Equipment Distributors, Stevens Hotel, Chicago, Ill., Jan. 15-19.

New York State Sewage Works Association, annual meeting, Hotel Statler, N. Y. City, Jan. 20-21.

National Sand & Gravel Association, convention and exhibit, Stevens Hotel, Chicago, Ill., Jan. 22-27.

National Ready Mixed Concrete Association, convention and exhibit, Stevens Hotel, Chicago, Ill., Jan. 22-27.

Conference on Polluted Irrigation Water, Auspices Environmental Health Study Section, Public Health Service; El Paso Health Dept., and Texas State Health Dept., El Paso, Tex. Jan. 27.

Association of Asphalt Paving Technologists, annual business meeting, Statler Hotel, St. Louis, Mo., Feb. 6-7.

National Association of Home Builders, Congress and Stevens Hotels, Chicago, Ill., Feb. 19-23.

National Council for Stream Improvement, annual meeting, Waldorf-Astoria Hotel, N. Y. City, Feb. 20-22.

National Crushed Stone Association, convention and exhibit, Stevens Hotel, Chicago, Ill., Jan. 29-Feb. 2.

Minnesota Federation of Engineering Societies, exposition, Minneapolis Armory, Minneapolis, Minn., Feb. 21-23.

Ontario Road Builders' Association, Royal York Hotel, Toronto, Ont., Feb. 22.

Associated General Contractors of America, national convention, San Francisco, Calif., Feb. 27-March 3.

American Road Builders Association, annual meeting, Cincinnati, Ohio, March 6-9.

New Jersey Sewage Works Association, annual convention, Hotel Stacy-Trent, Trenton, N. J., March 22-24.

National Plastics Exposition, Navy Pier, Chicago, Ill., March 28-31.

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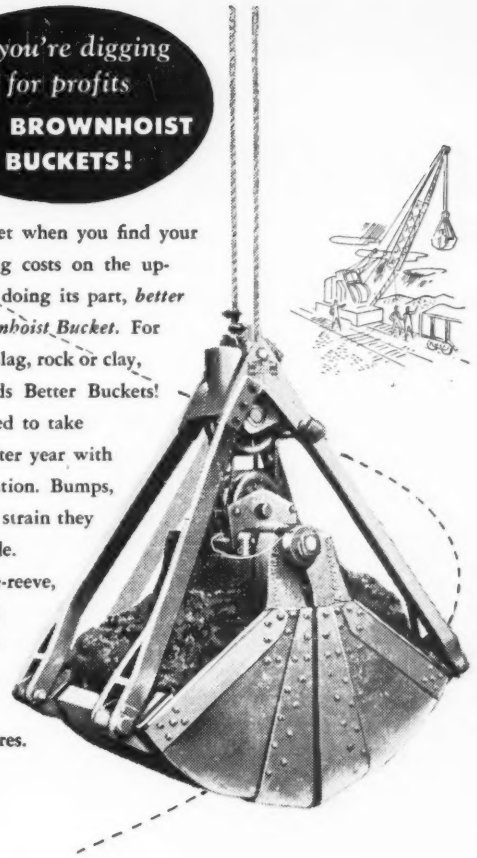

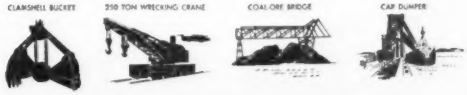

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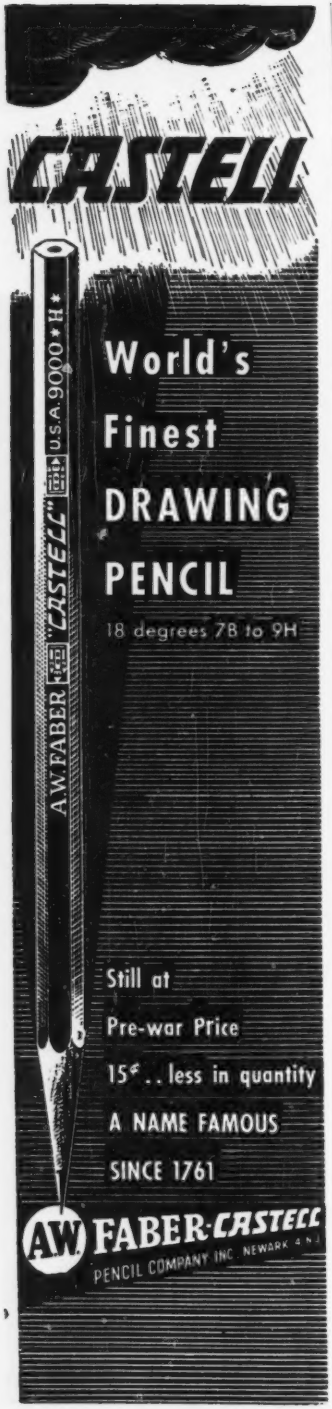


UNIT PRICES BID BY CONTRACTORS

Toledo builds bathhouse and junior swimming pool

For an investment of $242 per swimmer Toledo, Ohio is building a junior swimming pool, wading pool and bathhouse to accommodate 500 swimmers. Contract cost of $120,900 is split, $59,530 for pools, $61,370 for bathhouse.

The junior pool is a rectangle, 50′ x 100′ two foot deep at the shallow end to four foot deep at the deep end. This pool is surrounded by a 15′ wide, 6″ reinforced concrete walk. Design capacity of the pool is 500 persons based on 20 sq. ft. area of combined pool and walkway a person.

The wading pool is a rectangle 25′ x 32′ from zero inches to twelve inches in depth. This pool is at a level three foot below the Junior Pool and adjacent to it. These are connected by 35 foot long ramps, along the side and ten foot away from the wading pool. There is a ten foot width of 4″ reinforced concrete on all four sides of the wading pool.

Concrete in pool walls totals 135 cu. yd., in walks and floors, about 11,200 sq. ft. of 6″ reinforced concrete, 3,500 sq. ft. of 4″ reinforced concrete walks and 3,000 sq. ft. of 4″ plain concrete walk, all exclusive of the bathhouse concrete.

The bathhouse has brick exterior, glazed tile interior with plaster ceiling. Its cubage is 43,500 cubic feet.

	Unit Prices per		
	Swimmer	sq. ft. pool area	cu. ft. bathhouse
2 pools, area impr. sand grav. filt. sys.	$119	$10.20	....
Bathhouse complete	123	.....	$1.41

The contractor is A. Bentley & Sons Co. of Toledo whose low bid, on the pools was 21 percent lower, and on the bathhouse 2 percent lower, than the highs of four bids.

Engineering is under direction of B. R. MacRitchie, commissioner, division of engineering and construction city of Toledo.

Buildings unit prices at Shasta Dam, California

Square foot and square yard unit prices bids on floors, stairs, walls, plaster, ceilings are not often available for publication. Accordingly the accompanying unit prices in this form are especially interesting. They are for the completion of lower vista house, powerhouse adit and elevator lobbies at Shasta Dam, Central Valley project, California. Bids were received September 27, 1949 by the Bureau of Reclamation, L. N. McClellan, chief engineer, Denver, Colo. Work was to start within 30 days of notice to proceed and be complete, one section within 90 days, another within 150 days and, all work within 240 days. Liquidated damages are $10/day on the first section, $25/day on the second and final completion dates.

Minimum wage rates include: plasterers $2.50, plumbers, and steam fitters $2.375, cement finishers $2.15, ornamental ironworkers $2.25, laborers $1.425.

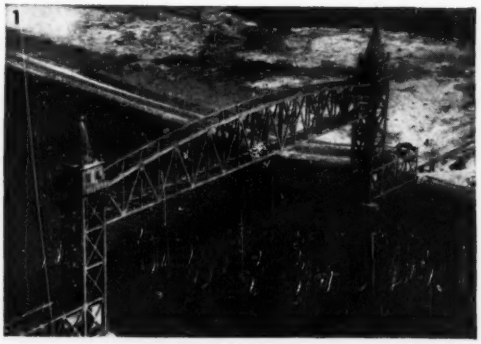
The government furnishes doors, aluminum railings, windows and other items where the bids are shown install only. On other items the contractor must furnish materials and equipment as well as install.

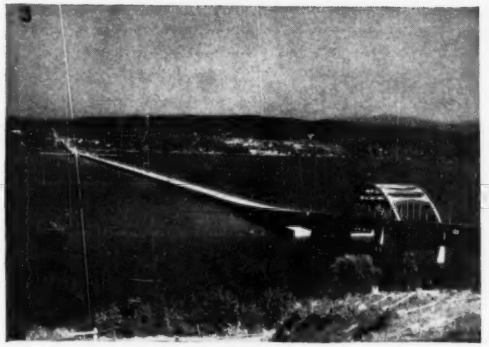
Five California contractors submitted bids including:

	Total	% above low bid
1 James P. Morton, Placerville	$69,111	
2 Hass & Rothschild, San Francisco (contract)	73,197	5.9
3 Jenson & Mangs, Palo Alto	106,879	55.0

Item		Quantity	Unit Prices 1	Unit Prices 2
Budd-concr fl fin	sy	90	$7.37	$6.70
Terrazzo				
1½″ fl & str bdg	sf	835	1.73	1.80
2″ fl & str bdg	sf	2,030	1.43	1.70
3″ fl & trench cov	sf	2,490	1.75	1.80
6½″ wall base at fl & str bdg	lf	150	2.33	2.00
6½″ wall base on strs	lf	43	2.33	4.00
6″ wall base	lf	675	2.33	2.00
3″ wall base at fl & str bdgs	lf	250	8.71	2.00
3″ wall base on strs	lf	16	2.17	4.00
1″ cove	lf	170	1.17	2.00
1½″ on strs	sf	115	3.34	5.00
2″ on strs	sf	125	2.33	5.00
Walls & wainscotg	sf	1,200	3.56	5.00
11″ prec-trzo window sill & rail wall cap	sf	58	3.49	10.00
Constr hr fire wall	sf	145	1.86	2.40
Furnish & install				
Wood framg for partn & susp ceilgs	sf	2,050	.61	.60
Met ceilg framg	sf	225	.78	1.80
Met lath & 3-ct plast on partn	sy	163	2.62	4.00
Met lath & 3-ct pl on susp ceilgs	sy	100	6.00	9.00
Met lath & 2-ct pl. on partn	sy	50	2.32	3.30
2-ct pl on concr bse	sy	61	2.04	3.00
3-ct pl on concr bse	sy	98	2.04	3.00
Pl on susp cl tile	sy	256	2.04	3.50
Trracta units	sf	4,555	4.22	3.30
Clay-tile units	sf	2,300	2.47	2.50
Susp acoust-unit vent ceilg	sf	755	1.30	1.20
Ceilg insul	sf	1,085	.72	.60
Finishg concr clg	sf	303	.20	1.00
Struct-glass wnctg	sf	990	5.81	6.00
Met fl-type toilet stl partn	lf	70	16.11	19.00
Alum gratg & trim	sf	58	7.88	8.00
Met cov for drain slots	lf	990	.43	.20
Plaster angles	ls	....	580	1200
Misc metal work	lb	3,500	.40	2.00
Drinking fountains	ea	2	145.20	60.00
Toil-paper holders	ea	10	6.97	6.00
Cabinets for folded paper towels	ea	5	6.76	6.00
Sh met ductwk	ls	....	3386	2000
Install				
Wood doors	sf	137	3.03	2.00
Stldrs in concr wls	sf	295	3.03	3.60
Gls drs & sidelgts	sf	166	4.65	5.00
White-met entr drs	sf	277	4.44	5.00
Alum railings	lf	136	3.26	2.50
Pl-gls windows	sf	266	1.12	1.50
Alum-sash windows	sf	620	2.00	2.50
Met flr drains	ea	8	13.35	24.00
Lavatories	ea	9	11.15	12.00
Water closets	ea	10	11.15	12.00
Urinals	ea	3	11.15	12.00
Service sink	ea	1	13.94	14.00
Stor water heaters	ea	2	13.94	14.00
Elect drink water cooler	ea	1	13.94	14.00
Grilles	ea	20	11.52	3.00
Ceil air outlets	ea	6	11.52	3.50
Intake screen	ea	1	29.04	6.00
Exhaust dampers	ea	2	29.04	6.00
Recess elect heaters	ea	12	11.62	12.00

Torrington Bearings assure dependability of operation in movable span bridges





1. Cape Cod Canal Bridge, largest vertical lift bridge in the world, has opened and closed its 4 million pound span on an average of once every 96 minutes for the last 14 years, its reliability assured by 16 Torrington Bearings.

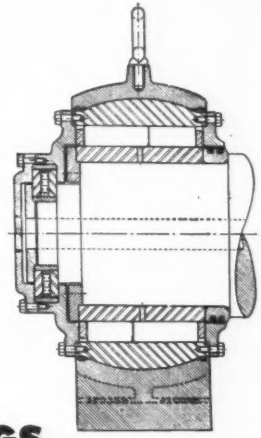
2. Chicago's Canal Street Bridge swings its two 3½ million pound leaves on 8 Torrington Bearings. So smooth is the operation of these heavy-duty bearings that this tremendous load is moved easily by two 75-hp motors.

3. The Lake Washington Bridge's floating span moves back into its recess on 16 guide rollers equipped with special Torrington Tapered and Straight Roller Bearings, designed to carry loads of 331,000 and 450,000 pounds.

Experience with various types of movable span bridges shows that Torrington Bearings assure freedom of operation under all weather and temperature conditions.

Torrington Bearings offer other important advantages, too. Infrequent lubrication needs reduce maintenance costs. Often, reduced size and cost of driving machinery and lubricating equipment is possible. Power consumption is materially reduced. Torrington Bearings have given years of reliable operation with minimum maintenance.

What applies to movable bridges applies as well to other types of heavy-duty equipment. Torrington engineers will gladly help you with friction problems on any application, routine or unusual. Write us today. THE TORRINGTON COMPANY, South Bend 21, Ind., or Torrington, Conn. District offices and distributors in principal cities of United States and Canada.



TORRINGTON BEARINGS

Spherical Roller • Tapered Roller • Straight Roller • Needle • Ball • Needle Rollers

Here's how TRANSITE PRESSURE PIPE meets these 7 basic water-line problems . . .

IF YOU are faced with some—or all—of these 7 common water-line problems, here is information about Johns-Manville Transite* Pressure Pipe that may be of help to you...facts that tell how this modern asbestos-cement pipe is helping to solve these problems in many communities.

1. Handling costs:

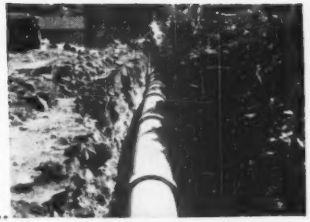
Because it is light in weight and easy to handle, Transite Pressure Pipe keeps handling costs down. Loading, unloading, and all other subsequent handling operations are simplified. More footage can be hauled per truckload—reducing trucking costs—and distribution along the trench is easier and more quickly accomplished. Moreover, mechanical handling equipment is not necessary except where larger sizes are being used; the pipe sections are easily lowered into the trench with rope slings.

2. Installation costs:

Transite Pressure Pipe offers important economies that help combat increasing costs of water-line installation. It is quickly and easily assembled in the trench. A coupling puller is the only tool necessary. Often, the pipe can be assembled so rapidly that the same foreman supervises both excavation and installation. The speed with which Transite is assembled means that the job is completed with a minimum of time and labor, thereby contributing important reductions in the overall cost of the system.

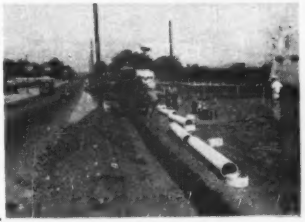
*Transite is a Johns-Manville registered trade mark

3. Soil corrosion:



Two factors give Transite Pressure Pipe exceptional resistance to corrosion: (1) the corrosion-resistant materials of which it is made; (2) the especially developed Johns-Manville process of manufacture which imparts a high degree of chemical stability to the finished pipe. This high resistance to corrosion has been substantiated by numerous installations. Many of these are serving as replacements in soils so destructive that the useful life of the pipe materials previously used had been seriously curtailed.

4. Internal corrosion:



Transite Pipe, because of its asbestos-cement composition, is not affected by tuberculation. Therefore, it is not necessary to resort to pipe of larger diameter to offset the internal effects of this costly form of pipe corrosion. And because progressive reduction of delivery due to tuberculation capacity is never a problem in a Transite pipe line, pressures and flows remain high—pumps operate at higher efficiencies. These factors that are often reflected in better service and lower water rates in communities served by Transite lines.

5. Joint leakage:

Transite's Simplex Coupling was designed to minimize underground leakage . . . and to provide maximum protection against failures resulting from trouble at joints. It consists of only three parts: a Transite sleeve, machined to fit over the pipe ends, and two rubber rings which, when assembled, are tightly compressed between pipe and sleeve. The joint thus formed is tight and flexible. It remains tight in service. Furthermore, each joint may be checked for proper assembly immediately upon completion.

6. Vibration and stresses:

Transite's flexible joints effectively absorb the vibration of heavy traffic—an especially important factor where pipe is laid under busy highways, or near railroad and street car tracks. Because each joint is capable of deflection up to five degrees, the entire line has a flexibility not ordinarily found in other types of waterline construction. This helps compensate for soil movements and other stresses to which the pipe may be subjected . . . provides an effective safeguard against costly pipe failures.

7. Maintenance:

In thousands of communities, Transite Pipe—with its advantages of joints that remain tight and flexible, its corrosion resistance, and immunity to tuberculation—provides low-cost water transportation that requires little, if any, maintenance. Transite lines do not have to be cleaned, lined, or replaced because tuberculation has reduced their original capacity. Reports from communities all over the country prove that Transite's asbestos-cement structure provides economies that continue through the years.

If you would like additional information about Transite Pressure Pipe, write to Johns-Manville, Box 290, New York 16, N.Y. Ask for Brochure TR-11A.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville Transite Pressure Pipe

5 weeks of construction time saved with LEHIGH EARLY STRENGTH CEMENT

Lehigh CEMENTS

• Dyckman Houses, Bronx, New York City, a project of the New York Housing Authority. • **General Contractor:** CAULDWELL-WINGATE CO., INC. **Contractor for superstructure:** CORBETTA CONSTRUCTION CO. **Ready-mixed concrete:** COLONIAL SAND & STONE CO., INC.

Here's an example of how forward thinking can speed construction all along the line. It was on the Dyckman Houses project in New York City's Bronx . . . seven 14-story buildings and a power plant. Six floors in each of the seven units had been poured when the approach of cooler fall nights called for typical Corbetta Construction Company planning.

In order to maintain the closely co-ordinated schedules for erecting forms, setting steel, placing and finishing the concrete, the Corbetta Construction Company, with characteristic foresight, changed to a quick-curing concrete made with Lehigh Early Strength Cement. And the result: Between September 12th and October 14th—in just 24 working days—41 floor slabs were poured; the way cleared for sub-contractors before winter set in; 5 weeks of construction time saved.

LEHIGH PORTLAND CEMENT COMPANY
ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

LEHIGH MORTAR CEMENT • LEHIGH PORTLAND CEMENT • LEHIGH AIR-ENTRAINING CEMENT • LEHIGH EARLY STRENGTH CEMENT

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

December 27

Wis., Monroe—City, water plant addn., concrete reservoir, brick pumphouse, deep well pumping equip., 2,200 ft. 10 in. watermains (trenches only). Plans deposit $5. Ward & Strand, 1 W. Main St., Madison, engrs.

†N. M., Albuquerque—B.A. About 12/29—U. S. Eng., P. O. Box 1528, water supply sys., power lines, Sandia Base, Serial No. Eng-29-005-50-25.

Tex., Abilene—B.A. 12/30—City, Boyd J. McDaniel, mgr., Abilene, 45,000 ft. 30 in. water supply mains. $500,000. Plans deposit $15. Freese & Nichols, 407 Danciger Bldg., engrs.

LOW BIDDERS

Md., Hyattsville — Washington Suburban Sanitary Comn., Hamilton St., Contr. 713-W & S, approx. 1,740 ft. 6 and 8 in. c.i. watermains and 1,500 ft., 6 and 8 in plain concrete or vitr. sewers, in Schuyler Rd., Whitney, Mintwood, and Wendell Sts. Brookside Forest, Four Corners Dist. Plans deposit $5. CD 10/10.

N. C., Goldsboro—State Hospitals, Bd. Control, Raleigh, Dec. 7, water supply imprvs. at State Hospital, Div. 1, filter plant, from Boyd & Goforth, Pineville Rd., Charlotte, **$169,500.** CD 11/22.

S. C., Clinton—Town, Dec. 6, WW imprvs., Div. 1, from Ridlehuber & Co., Greenwood, **$180,266**; tank, from R. D. Cole Mfg. Co., Newnan, Ga., **$39,600.** CD 11/16.

CONTRACTS AWARDED

Ind., Merom—Town Bd. Trustees, Lawrence Weaner, pres., water sys. to A. & E. General Contg. Co., 5009 W. Quincy St., Chicago, Ill., water tower to W. E. Caldwell Co., Realty Bldg., Louisville, Ky. Approx. **$80,000.** CD 9/20/46.

Md., Hyattsville—Washington Suburban Sanitary Comn., Hamilton St., Contr. 695-W, approx. 28,000 ft. 20-to 42-in. supply line from Columbia Pike near Paint Branch to Wheaton, to Ligon & Ligon, 3310 Ridgewood Ave., Baltimore, **$691,836.** Bids 11/28, awarded 12/1. CD 2/1.

O., Middletown—City, City Hall, watermains and imprvt. program, to Fishel Co., 1245 Holly Ave., Columbus. Approx. **$450,000.** Bids 10/25. CD 10/5.

Man., Rivers—Government of Canada, Hunter Bldg., Ottawa, Ont., watermains, to International Water Supply Ltd., 1322 Cornwall Ave., Regina, Sask., Approx. **$75,000.** Canadian Commercial Corp., 70 Lyon St., Ottawa, Ont., engr.

Que., Montreal North—Municipality, watermains in 8 streets to A. Pepin Ltd., 155 W. St. Charles St., Longueuil, **$49,678.** J. N. Langelier, 10 W. St. James St., Montreal, engr.

SEWERS, WASTE DISPOSAL

BIDS ASKED

December 28

●**Pa., Norristown**—Norristown Boro, Norristown, secondary sewage treatment plant addns., alterations. $1,800,000. William A. Goff, Inc., Broad Street Sation Bldg., Phila., engr. CD 11/23.

Tex., San Antonio—B. A. 12/29—City, Jimmie Knight, Street Comr., City Hall, Military Plaza, Sec. 6 and 6 of East Side sanitary sewer main and laterals project. $130,000. Beavers & Lodal, Transit Tower, engrs. CD 7/13/48.

Ky., Louisville—B. A. January—Metropolitan Sewer Dist., City Hall Annex, relief sewer serving Shelby Park Dist. $700,000, S. S. Vance, ch. engr. CD 4/22/48

Calif., San Diego—B.A. 1/3—City, Civic Center Bldg., sanitary sewers in Catalina Bldg., Silver Gate Ave. $64,153. Alden E. Fogg, city engr.

Wash., Woodland—B. A. 1/3—City, City Hall, 28,000 ft. 8 and 10 in. gravity sewer lines, 4,500 4-to 8-in. force main, 5 lift stations and primary type sewage treatment plant, $206,100. Plans deposit $25. Parker & Hills, Smith Tower, Seattle, Zone 4, engrs. CD 2/25/46.

Mass., Lawrence—B.A. 1/9—City, Gordon F. Gaffney, clk., refuse incinerator. $125,000. Plans deposit $25. Extended date. Metcalf & Eddy, 1300 Statler Bldg., Boston, engrs. CD 10/27.

Calif., Arcata—B.A. 1/20—City, City Hall, sewage treatment plant. Approx. $50,000. Plans deposit $15. Hal C. Acheson, City Hall, city engr. Kaiser Engineers, Inc., 1924 Broadway, Oakland, engrs.

LOW BIDDERS

Ind., Washington—Bd. P. W., Nov. 28, sewerage sys., from Thompson Constr. Co., 3840 Prospect St., Indianapolis, **$636,392.** Est. $750,000. CD 11/15.

S. C., Clinton—Town, Dec. 6, sanitary sewer imprvs., from Ridlehuber & Co., Greenwood, **$113,895.** CD 11/15.

Tex., Houston—City Hall, 900 Brazos St., Nov. 30, sanitary sewers, Lockwood Dr., from Farnsworth & Chambers, Inc., Box 74, **$663,-165.** Est. $788,000. CD 11/21.

CONTRACTS AWARDED

Ga., Valdosta—City, sewage treatment plant, to S. J. Curry & Co., Albany, **$214,700.** Bids 12/7. CD 11/15.

Tex., Waco—City, R. C. Hoppe, mgr., Proj. 2, sanitary sewer imprvs., incl. 63,177 lin. ft. pipe, various types and sizes, to Roger Smith, P. O. Box 182, **$244,238.** Bids 12/6, awarded 12/9. CD 11/16.

Wis., Wauwatosa—City, sanitary relief sewers in W Meenecke Ave., Swan Rd. and W. North Ave., to R-W Constr. Co., 4831 W. State St., Milwaukee, Zone 8 **$89,350.** Bids 12/5. CD 11/23.

Que., Farnham — Municipality, sewers and watermains, own forces, **$150,000.** G. Migue, Farnham, engr.

Que., Gatineau Mills—Municipality, sewers, to Sauriol Constr. Co., Inc., Gatineau Mills, **$100,000.**

BRIDGES

BIDS ASKED

Tex., Fort Worth—B. A. 12/29—City, W. O. Jones, mgr., City Hall, replacing flood-wrecked Rogers Road Bridge across Trinity Clear Fork. $50,000. Plans deposit $10. C. M. Thelin, c/o owner, dir. P. Wks. CD 10/11/45.

January 17

†Oregon—U. S. Eng., Pittock Block, Portland, fabrication, erection bridge superstructures for 2 lower river overflow crossings and lower main river crossing, and highway underpass structure on Southern Pacific R. R. and Oregon State Hy. 58 relocation, Lookout Point Reservoir, Lane Co., CIVENG-35-026-50-181.

LOW BIDDERS

California—State Div. Hys., 120 Spring St., Los Angeles, Dec. 1, bridges, culverts, drainage dips and approaches between 2 mi. N. W. of Niland and Durmid, Imperial and Riverside Counties, from E. L. Yaeger Co., Box 87, Riverside, **$416,226.** CD 11/9.

Maryland—State Rds. Comn., Baltimore, Dec. 6, nine 52 ft. steel I-beam approach spans and bases of 2 bascule piers of bridge on Queestown-Stevensville Hy. over Kent Island Narrows, superstructure supported on precast concrete pile bents and spill through type abutments, two 27 ft. roadways, 4 ft. white

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,-000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	

Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.:

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

♦	Federal Government
●	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

concrete median, abutments supported on cast in place concrete piles, embankment sections at each abutment, treated timber pile dolphins, Contr. Q. 168-4215, Queen Annes Co., from McLean Contg. Co., 1201 Fidelity Bldg., Baltimore,. **$760,211.** CD 11/16.

Michigan—State Hy. Dpt., Lansing, Zone 13, Dec. 8, concrete retaining walls on Edsel Ford Expressway near Addison Ave., in Detroit, Proj. UI B 23 of 82-22-10. Wayne Co., from L. A. Davidson, 213 E. St. Joseph St., Lansing, **$174,386,** est. $100,000. CD 11/12.

Neb., Decatur — Burt Co. Bridge Comn., Decatur, rejected bids June 16, 1947, bridge over Missouri River. L. B. **$845,280.** Will readvertise. CD 6/20/47. under LB.

CONTRACTS AWARDED

New York—Bureau Contracts & Accounts, Albany, preliminary construction on 0.28 mi. sect. Williamsburg Bridge connection to Brooklyn-Queens Expressway, King Co., to Horn Constr. Co., Inc., 1776 Broadway, New York, Zone 19. **$606,407.** Bids 10/26. CD 11/1, under LB.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, 2,230 lin. ft. concrete, steel truss bridge over Arkansas River on U.S. 60 at Ponca City, Kay Co., to J. A. Raines Constr. Co., Barnes Bldg., Muskogee, **$720,202,** est. $991,627***6 concrete, steel bridges St. Hy. 20 west of Pryor, Mayes Co., to Amis Constr. Co., 1647 Exchange Ave., Oklahoma City, Zone 8. **$148,397,** est. $172,193***grading approaches and new concrete, steel bridge over Washita River at Maysville, Garvin Co., to Frost Constr. Co., Hydro, **$200,298,** est. $229,304. Grand total $1,068,897. Bids 12/6, awarded 12/7. CD 11/28 and 11/29.

STREETS AND ROADS

BIDS ASKED

Pennsylvania — B. A. 1/4 — **Pennsylvania Turnpike Comn.**, 11 N. 4 St., Harrisburg.

Allegheny and Westmoreland Counties—grading, structures, drainage, paving **4.12 mi.** Sec. 31D, Western exten. of Turnpike from point approx. 2,000 ft. west of Beatty Rd. in Patton Twp. to point approx. 930 ft. east of Allegheny-Westmoreland Co. line.

†Georgia—B.A. On or About 1/19—U. S. Eng., P. O. Box 1169, Mobile, 7, Ala., relocating State Hy. 92, and Pritchard Branch Rd., near Acworth, Cobb Co., Serial No. CIVENG-01-076-50-35.

LOW BIDDERS

California—State Div. Hys., Sacramento, Dec. 7, grading 2.7 mi. Carmel Valley Rd. between Robinson Canyon Rd. and Los Laureles Rd., Monterey Co., from John G. Mehren, 780 Ridgley Dr., Campbell, **$161,522.** CD 11/14.

Colo., Denver—City and Denver Co., T. P. Campbell, mgr. Imprvs. & Parks, City and County Bldg.

Dec. 7, paving district on 17 St. from Broadway to Wynkoop, removing tramway tracks and present pavement and 8 in. c. conc., repaving street from curb to curb, from Platt Rogers, Inc., 1530 13 Ave., **$162,449, Est. $188,339,** CD 11/22.

●**Maryland—State Rds.** Comn., Baltimore, Dec. 6, wid'n., resurf. portions roadway and grading, drainage, surf. 4.013 mi. several curve modifications on State Rte. 26, beginning at Mt. Pleasant and exten. northeasterly, to Libertytown, Contr. F 476-2-615, Frederick Co., from American Asphalt Products Co., 1 and P. Sts. S. E., Wash. D. C., **$204,148;** grading, drainage, surf., 2.473 mi. divided hy. along relocated section of U. S. Rte. 50 (link in National North-South Rte.-via Chesapeake Bay Bridge, beginning approx. 0.5 mi. east of Cox's Creek and exten. east to west approach to proposed Kent Narrows Bridge Contr. Q.-168-1-215, Queen Annes Co., from C. J. Langenfelder & Son, 3427 Pulaski Hy., Baltimore, **$902,158.** CD 11/23.

●**Pennsylvania**—State Hy. Dpt., Harrisburg, Dec. 9, c. con. paving, constructing **2 rein.-**con. structures, exten. structure and c. conc. wid'n, left and right of existing pavement 21,761 ft. L. R. 36 (3-C); 35 (4). T.R. U.S. 11, from point in Chambersburg Boro. south, Franklin Co. from E. D. Plummer & Sons, Chambersburg. **$617,221***wid'n. pavement with c. conc. base 22 to 28 ft., bit. surf. new base and existing pavement 44 to 50 ft. wide; bit. surf. existing pavement; construct c. conc. base with bit. surf., and two I-beam bridges 15,083 ft. L. R. 258 (1). T.R. 99, U.S. 19 in city of Erie, South, Erie Co., from Charles H. Fry Constr. Co., 1902 Cherry St., Erie, **$574,105***build-up and wid'n. pavement with bit. surf. crushed aggregate base, 20 ft. wide, incl. exten. rein.-con. bridge and constructing bit. surf. crushed aggregate base 24,271 ft. L. R. 200, Sec. 3R. T. R. 77 from

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CANALS
TANKS
WALLS
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Write or wire for engineering data and estimates.
HUDSON-RUMSEY CO. INC.
1675 NIAGARA ST. BUFFALO, N. Y.

point in city of Meadville, northwesterly, Crawford Co., from Western Pennsylvania Asphalt Paving Co., P. O. Box 1381, Erie, **$303,976.** CD 11/23.

†Texas—Trib. Roads Admin., Dpt. Commerce, 254 New Customhouse, Denver, Colo., Dec. 7, grading, surf. 7.747 mi. road in Big Bend National Park of the North Entrance, Rio Grande and Santa Elena Proj. 1-B (Por. 2-A (Por.), and 3-A, Brewster Co., from T. C. Cage, 6637 W. Commerce St., San Antonio, **$327,548.** CD 11/29.

Tex., Longview—Gregg Co., R. S. Wyche, aud., Longview, Nov. 28, base course and asph. surf. tr. Industrial Service Rd. from L. W. Pelphrey Co., Gladewater, **$67,873.** Est. $70,000. CD 11/21.

Tex., Nederland—Jefferson Co., W. W. Kent, judge, Beaumont, Dec. 16, b. conc. surf., drainage, Nederland-Port Neches Rd., from Harrison Eng. & Constr. Co., Texas City, **$141,409.** Est. $175,000. CD 11/16.

†Washington—Bureau Public Roads, Dpt. Commerce, Morgan Bldg., Portland, Ore., Dec. 7, grading, clearing 3 mi., advance clearing 2 mi. Heart-of-the-Hills Hy. starting 8 mi. south of Port Angeles in Olympic National Park, Clallam Co., from Strong & McDonald, 4045 Rushton Way, Tacoma, **$241,410.**

●†Alaska—Alaska Road Comn., Juneau, Dec. 5, clearing, grading, surf. 44.3 mi. Glenn Hy. between Palmer and connection with Richardson Hy., Sect. B-2, Mile 102 to Mile 146, and Dec. 6, clearing, grading, surf. draining Glen Hy., Mile 146 to Mile 189, Sect. B-3, between Palmer and connection with Richardson Hy., from Babler Bros. & Rogers Constr. Co., 4617 S. E. Milwaukie St., Portland, Ore., **$1,223,057** and **$1,465,026** respectively. CD 11/2.

CONTRACTS AWARDED

N. Y., New York — President Manhattan Boro, Municipal Bldg., Zone 7, paving Central Park south from Grand Army Plaza to Columbus Circle, to Frank Mascali & Sons, Inc., 120 St. and 31 Ave., Flushing, **$101,111.** Bids 10/7. CD 9/29.

●Ohio—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15, b. conc. wid'n. and resurf. Type T-35, U. S. R. 20 A, Fulton and Lucas Counties, and b. conc. wid'n. paving, resurf. Type T-35, U. S. R. 6, Henry Co., to Fenton Constr. Co., Masters Ave., Ashland, **$67,432** est. $78,300 and **$328,669** est $386,000 respectively***c. conc. paving, Type T-71, U. S. R. 50, Hamilton Co., to De Salvo Constr. Co., 342 Elliott Ave., Cincinnati, **$226,266** est. $250,600***b. conc. Type T-35 and constructing continuous steel beam Bridge No. LA-141-137, with concrete deck and substructure, constructing continuous concrete slab Bridge No. LA-141-185, with concrete substructure, S. R. 141, Lawrence Co. to W. J. Seidenstricker Co., 209 S. High St., Columbus, **$138,412** est. $182,400***b. conc. paving Type T-35 on R-117 and constructing steel beam bridge with concrete deck and substructure, 1 span and concrete box culvert two cells, S. R. 37, Licking Co., to The Red Eagle Corp., 176 Walhalla Rd., Columbus, **$249,272** est. $328,-300***hot-mixed, hot-laid b. conc. on water-bound macad. paving Type 2-50 on R-20, C. R. No. 10, Lucas Co., to Pierce Constr. Co., 3005 Bellevue Rd., Toledo, **$301,876** est. $322,900*** c. conc. paving Type T-71, Lucas Co., to Launder & Son, Inc., Station E, Box 6, Toledo, **$273,056** est. $282,400***b. conc. paving, Type T-35, U. S. R. 42, Trumbull Co., to Kane, O'Boro & Haenny, Inc., 65 W. Indianola Ave., Youngstown, **$60,922** est. $62,-335. Grand total $1,645,925. Bids 11/29. Awarded 11/29. CD 11/18.

●Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, traffic bound surf. 3.128 mi. U. S. 62 east of Okemah, Okfuskee Co., to W. D. Jeffrey Constr. Co., 4201 Towson St., Fort Smith, Ark., **$75,989** est. $105,814***stabil. aggregate base and blended rock asph. surf. 7.099 mi. State Hy. 18 north from Washita River, Murray Co., to Amis Constr. Co., 1647 Exchange Ave., Oklahoma City, Zone 8, **$262,-699** est. $319,647***traffic bound surf. 6.188 mi. State Hy. 20 west of Pryor, Mayes Co., to S. E. Evans Constr. Co., 2914 North O St., Fort Smith, Ark., **$209,703** est. $286,256***stabil. aggregate base, double bit. surf. 7.32 mi. U. S. 59 north from Sequoyah Co. line, Adair Co., to H. D. Youngman, Baxter Springs, Kan., **$269,487** est. $297,796***traffic bound surf. 7.172 mi. U. S. 70 west from the Cotton Co. line, Tillman Co., to Noland Smith Co., El Reno, **$65,902** est. $91,662***traffic bound surf. 7.193 mi. U. S. 70 east of the Tillman Co. line, Cotton Co., to Smith Bros., Noble, **$94,910** est. $128,355***traffic bound surf. 7.475 mi. farm-to-market road at Guymon, Texas Co., to Broce Constr. Co., Woodward, **$69,894** est. $86,260. Grand total $1,048,584. Bids 12/6. CD 11/29.

Tex., Houston—Rice Institute, M. Esperson Bldg., asph. paving streets and parking areas in new Stadium zone to Parker Bros. & Co. Inc., 5303 Navigation St. Approx. **$218,000.** W. P. Moore, 4605 Montrose St., engr.

EARTHWORK, WATERWAYS

BIDS ASKED

December 27

Ohio—Dpt. P. Wks., S. O. Linzell, Ohio Dpts. Bldg., Columbus, dam, spillway, clearing and other work on Washington Co. Lake, in Little Hocking River near Veto. Plans deposit $25, Div. Wildlife, 1613 Wyandotte Bldg., Columbus, engrs.

December 28

†Florida—U. S. Eng., P. O. Box 4970, Jacksonville, emergency flood control, Rice Creek Basin, about 12 mi. northwesterly of Palatka, Inv. No. CIVENG 08-123-50-40.

†Florida—B.A. 12/28—U. S. Eng., P. O. Box 4970, Jacksonville, repairing North Jetty and revetment Lake Worth Inlet, Inv. No. CIV-ENG-18-123-50-45. CD 6/9/44.

About December 29

†Illinois—U. S. Eng., 82 U. S. Courthouse, 1114 Market St., St. Louis 1, Mo., closure structure Prairie Du Rocher and vicinity (Proj. Item III-D) Edgar Lakes and Prairie Du Rocher and Modoc Drainage and Levee Dist.) Randolph Co., incl. precast concrete piling, steel sheet piling cut-off wall, rein.-con. retaining walls on each side of single track railway, stone protection of earth slopes a subdrainage sys., stop log storage and crane handling facilities and about 270 ft. adjacent levee construction.

December 29

†Washington—Bureau Reclamation Dpt. Interior, Cody, earthwork, tunnel structures, surf. Shoshone Power Plant Access Road, Station 0 plus 00 to Station 13 plus 74.73 on Shoshone River approx. 7 mi. west of Cody, in Park Co., Spec. 2845. Michael W. Straus, comr.

December 30

†Oregon — U. S. Eng., 628 Pittock Block, Portland, Zone 5, clearing brush, trees and debris from revetments along Willamette, Molalla, Clackamas and Santiam Rivers, Serial No. CIVENG-35-026-50-175.

†California—B.A. 1/3—U. S. Eng., Wright Bldg., Sacramento, excavation for abutments Folsom Dam, Spec. 04-167-50-32.

January 4

†Washington—Bureau Reclamation, Dpt. Interior, Coulee Dam, clearing equalizing reservoir between North Coulee and South Coulee Dams, Columbia Basin Proj., Spec. R1-CB-34 (Region 1).

January 5

†California—Bureau Reclamation, Tracy, earthwork, structures, Station 4535 plus 00 to Station 5485 plus 50, Delta-Mendota Canal and Firebaugh Wasteway, Spec. 2857. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

†Montana—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Louisville, approx. 280,000 bbl. portland cement in bulk under Schedule 1, and approx. 25,600 tons pozzolan in bulk under Schedule 2 or approx. 75,000 tons portland, pozzolan cement in bulk under Schedule 3, for constr. of Canyon Ferry Dam and Power Plant, Canyon Ferry Unit Missouri River Basin Proj., Spec. 2835. Extended date. L. N. McClellan, ch. engr. CD 11/16.

†Oregon—B. A. 1/5—Bureau Reclamation, Dpt. Interior, Bend, pneumatically-applied mortar canal sealing, Mile 0.6 to Mile 4.11, North Unit Main Canal, Deschutes Proj. Spec. No. R1-63.

†Missouri—B.A. About 1/12—U. S. Eng., P.O. Box 97, Memphis, Tenn., placing approx. 500,-000 cu. yd. earthwork, riverside enlargement and new levee, located along south bank of Little River Diversion Channel approx. 21 mi. southwest of Cape Girardeau, and 1 mi. north west of Delta, begins at upper end of existing levee approx. 2 mi. east of point where Missouri Pacific R. R. crossed levee and extends down levee approx. 2¼ mi., Item R-48.1 A.C., Station 0/2-2/17, CIVENG 40-041-50-79.

†Iowa—B.A. on or About 1/19—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., clearing, grubbing; 1,190,000 cu. yd. unclassified excav., 8 drainage structures, (30 in. to twin 54 in), 106 acres seeding, Potawattamie Co., along right and left banks of Upper Pony Creek Ditch and along right bank of Missouri River between mouth of Mosquito Creek and Levee Mile 21.5, CIVENG 25-066-614-105.

†Texas—B.A. 1/17—U. S. Eng., 606 Santa Fe Bldg., Galveston, construct residence and storage bldg., Lavon Dam and Reservoir, East Fork, Trinity River, Inv. No. CIVENG-41-243-50-126. CD 6/9/44.

LOW BIDDERS

†Illinois—U. S. Eng., 826 U. S. Court House & Custom House, 1114 Market St., St. Louis 1, Mo., levees Grand Tower Drainage and Levee District, Proj. Item 1-B, Jackson Co., incl. 322,-000 cu. yd. levee embankment, 1 drain, approx. 2,500 lin. ft. storm sewers, about 3,500 lin. ft. drainage ditch, removal certain sewers, manholes, valves, etc. at Grand Tower, east bank of Mississippi River about Mile 78.7 and 80.0 above mouth of Ohio River, Inv. No. CIVENG-23-065-50-24, from S. J. Groves & Sons, 510 Wesley Temple Bldg., Minneapolis, Minn., **$219,355.** Est. $168,780. CD 11/21.

CONTRACTS AWARDED

Mass., Framingham — Town, P. Wks. Dpt., Memorial Bldg., deepening and constr. culvert Beaver Dam Brook, to Auburndale Constr. Co. & Marino Bros., 339 Auburn St., Auburndale, **$39,942.**

AIRPORTS AND AIRBASES

BIDS ASKED

Mo., Kennett—AIRPORT—B.A. 12/27—City, Hon. J. W. Karsten, mayor, at office of City Clerk, City Hall Bldg., airport. Plans deposit $17. Chas. C. Redman, Jr., engr.

December 28

Ga., Atlanta—HANGAR, etc.—Civil Aeronautics Admin., 84 Marietta St. N. W., hangar, sanitary system, parking aprons and other items at Winder Airport. CD 6/28/45.

(Continued on page 69)

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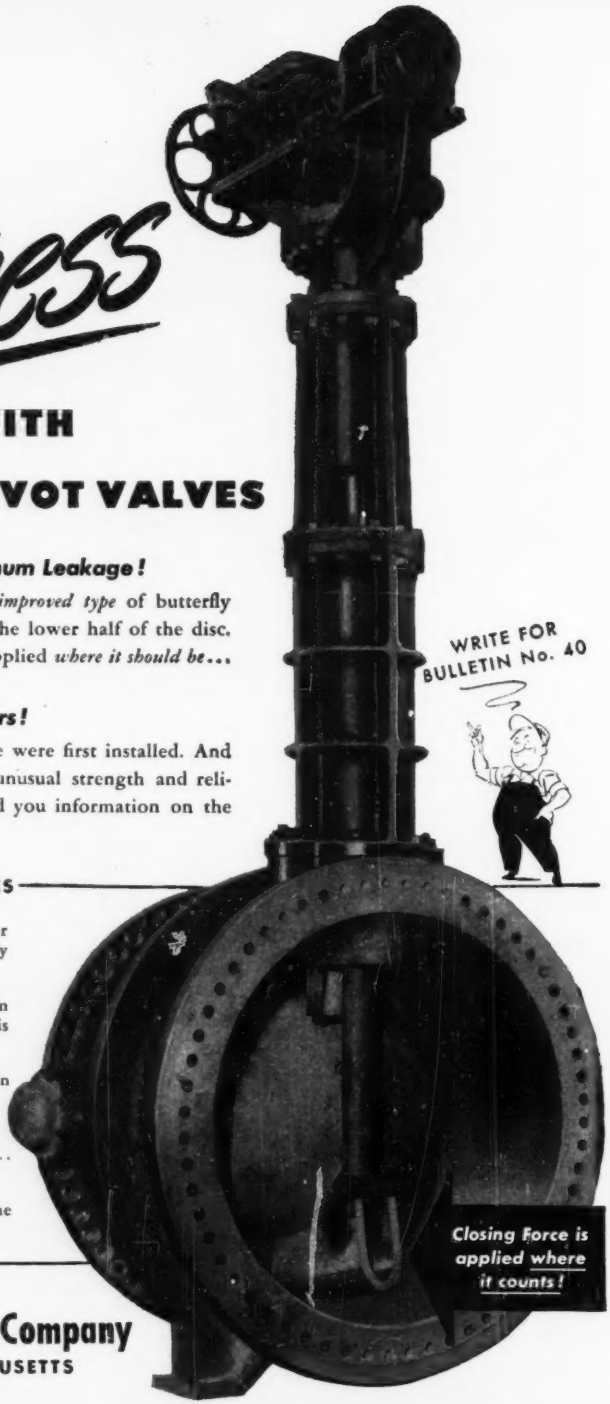

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Closing Force is applied where it counts!

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INDIAN ORCHARD, MASSACHUSETTS

(Continued from page 66)

Calif., Weaverville—AIRPORT—B.A. 1/3—Trinity Co., Courthouse, airport. Approx. $50,000. Plans deposit $15. Clair A. Hill, 1525 Court St., Reading, engr. CD 12/11/44.

PUBLIC BUILDINGS

BIDS ASKED

Mass., Wrentham—GARAGE—B.A. 12/27—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, block garage. Plans deposit $10.

O., Coventry—SCHOOL—Bd. Educ., C. S. Wellock, clk., Coventry Local School Dist., Portage Lakes Dr., Coventry. Cottage Grove School. Plans deposit $20. W. B. Huff, 1060 N. Main St., Akron, Zone 10, archt. CD 10/14/48.

✦Ont., Toronto—OFFICE—Mathers & Haldenby, archts., 15 St. Mary St., 3 story, 43x130 ft., rein.-con. granite office, Bay St., for United States Government, Wash., D. C., U. S. A. $500,000.

December 28

Conn., Madison—SCHOOL—Town. Robert T. Cairns, chn. School Bldg. Comn., Madison, 1 story, 60x290 ft., 75x120 ft. brick, steel school. $800,000. Westcott & Mapes, 109 Church St., New Haven, archts. CD 5/4.

Mass., Athol—HOUSING—B.A. 12/28—Town of Athol Housing Auth., Town Hall, 32 single family frame houses, State Aid Proj. Athol 200-1. $300,000. A. J. Schumacher, 102 Mt. Auburn St., Cambridge, archt. CD 7/21.

S. C., Columbia—INDUSTRIAL—State of South Carolina, Columbia, industrial bldg. for Negro Girls. $300,000. Plans deposit $25. The McPherson Co., 408 S. Main St., Greenville, archts. CD 9/29.

December 29

●Mass., Framingham—HOUSING—Town of Framingham Housing Auth., 110 unit, fifteen 2 story, brick, Masterfield Veterans Housing. Approx. $1,250,000. Plans deposit $100. Sidney F. Hooper, 16 Court St., Boston, engr., CD 11/4/48.

N. Y., Cicero—SCHOOL—B.A. 12/29—Bd. Educ., Central School Dist., North Syracuse, school. $534,000. Sargent, Webster, Crenshaw & Foley, 2112 Erie Blvd. East Syracuse, archts.

N. Y., North Syracuse—SCHOOL—B.A. 12/29—Bd. Educ., Central School Dist., North Syracuse, school, at Pritcher Hill. $451,000. Harry A. & F. Curtis King, Herald Bldg., Syracuse, archts.

Tex., Kingsville—ADMINISTRATION-LIBRARY—Texas College of Arts & Industries, Kingsville, combination administration-library. $825,000. Plans deposit $50. Phelps & DeWees & Simmons, 1501 Majestic Bldg., San Antonio, archts. Eggers & Higgins, 542 5 Ave., New York, N. Y., consult. archts. CD 7/11

December 30

Ga., Atlanta — GYMNASIUM — City Bd. Educ., City Hall, gymnasium at O'Keefe High School. Approx. $250,000. Bodin & Lamberson, Forsyth Bldg., archts.

Tex., Lufkin—SCHOOL—B.A. 12/30—Lufkin Independent School Dist., Lufkin, masonry Dunbar Junior-Senior High School. $250,000. Wilbur Kent, Lufkin, archt. CD 12/17/48.

January

Ill., Rockford—SCHOOL—City, general contract and mechanical work for Rolling Green School. Excavation and grading contract for above school, project of School Dist. No. 205 of City of Rockford No. 205, awarded to Anderson Bros. Contr., Rockford, **$47,275.** Gilbert A. Johnson, American National Bank Bldg., archt. and engr. CD 10/31.

About January 2

Ala., Jasper — HOMES — Jasper Housing Auth., Jasper, 40 duplex type homes, $300,000. Long & Gatling, Frank Nelson Bldg., Birmingham, archts. CD 9/12

January 2

Ky., Hazard—HIGH SCHOOL—Bd. Educ., Perry Co., Hazard, 2 story, bsmnt., brick, hollow tile high school. $300,000. Plans deposit $25. H. A. Spalding, Baker Bldg., Dpt. Alfred Marcum, 489 Bobolink Dr., Lexington, engr.

January 3

Calif., Santa Rosa — MEMORIAL — Sonoma Co., Courthouse, 1 story, rein.-con., steel memorial bldg., $580,000. Plans deposit $25. C. A. Caulkins, Rosenberg Bldg., Santa Rosa, archt. C. Jefferson Sly, 580 Market St., San Francisco, engr. CD 4/16/46.

●N. Y., Homer—HIGH SCHOOL—Bd. Educ., Homer Central School Dist., Homer, high school and grade school addn. $1,218,000. Wallace P. Beardsley, Seward Bldg., Syracuse, archt. CD 11/10, under LB.

●Calif., Los Angeles—CHEMISTRY-GEOLOGY—B.A. 1/4—University of California, Bd. Regents, 405 Hilgard Ave., 150,000 sq. ft. chemistry-geology bldg. $3,000,000. Extended date, Kaufman & Stanton, 627 S. Carondelet St., archts. CD 11/28.

●Md., Baltimore — SCHOOL — City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, 3 story, T-shaped, 25x52x70x176x176x252 ft., brick, cinder block, concrete, West Baltimore Negro School, $1,460,000. Plans deposit $50. Francis J. Thurman, 11 E. Lexington St., archt. Turpin, Wachter & Assoc., 1004 N. Charles St., mech. and structural engrs. CD 11/17/48.

Wash., Kettle Falls—SCHOOL—School District 196, Kettle Falls, 1 story, 60x214 ft., school. $260,000. Plans deposit $15. Geo. M. Rasque & Son, Washington Trust Bldg., Spokane, archts. CD 9/30.

Mich., Ann Arbor—SCHOOL—B.A. 1/4—Bd. Educ., Ann Arbor, 1 story, T-shaped, 80x385 ft. and 80x392 ft., masonry, structural steel, concrete school. $725,000. Plans deposit $25. Kasurin & Kasurin, 303 State Savings Bldg., archts. CD 4/28.

N. Y., Edmeston—SCHOOL—B.A. 1/4—Bd. Educ., Dist. 1, Edmeston, central school addn. Plans deposit $30. Myron A. Jordan, W Main St., Richfield Springs, archt.

N. Y., New York — HOUSING TOPSOIL IMPRVS.—B.A. 1/4—New York City Housing Auth., 63 Park Row, Zone 7, topsoil and planting for Lester W. Patterson Houses (Proj. No. NYS-11), in area bounded by E. 139 St., 3 Ave., E. 145 St., E. 146 St., and Morris Ave., Bronx Boro. Plans deposit $25.

N. Y., Rockaway—HOUSING STREET IMPRVS.—B.A. 1/4—New York City Housing Auth., 63 Park Row, New York, Zone 7, street and yard imprvs. Arverne Houses (Proj. No. NYC-18) in area bounded by Rockaway Beach Blvd., Arverne Blvd., Beach 56 St., Beach Channel Dr. and Beach 54 St., Queens Boro. Plans deposit $25.

January 5

●Ala., Birmingham—BUILDING—University of Alabama, Tuscaloosa, medical and dental college bldg. at Birmingham Branch, University of Alabama, $1,500,000. Extended date. Warren, Knight & Davis, Protective Life Bldg., archts. CD 10/24.

✦Calif., Oakland—FIRE STATION—B.A. 1/5—U. S. Engr., 180 New Montgomery St., San Francisco, headquarters, fire station, Oakland Army Base, Serial No. Eng-04-203-50-108.

✦Idaho—POWER PLANT IMPRVS.—Bureau Reclamation, Anderdson Dams, installing electrical and mechanical equipment, Anderson Ranch Power Plant, switchyard and outlet works, Boise Proj., south fork of Boise River about 30 mi. northeast of Mountain Home, Spec. 2852. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

✦Montana—RESIDENCES, etc.—B.A. 1/5—Bureau Reclamation, Dpt. Interior, Great Falls, 10 temporary residences, extens. utilities for gov't. housing at Chester, 557 lin. ft. water pipe; 490 lin. ft. sewer, Missouri River Basin Proj., Lower Marias Unit, Marias Div., Spec. R6-35, (Region 6), L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, Colo., ch. engr.

✦Alaska, Palmer—HOUSES, etc.—B.A. 1/5—Dpt. Agriculture, c/o Chief, Div. Purchase, Sales & Traffic, 14 St. and Independence Ave, S.W., Wash., 25, D. C., 7 houses with sewers, waterlines and roadwork for Agricultural Research Admin., USDA No. 46-50. Plans deposit $10. Extended date. CD 11/9.

Que., Bagotville—SUPPLY—B.A. 1/5—J. D. McCarthy, secy., Canadian Commercial Corp., 70 Lyon St., Ottawa, Ont., unit supply bldg. at R.C.A. F Station, Approx. $150,000. Extended date. CD 11/18.

Tex., Menard—SCHOOL—B.A. 1/17—Menard Independent School Dist., Menard, 1 story, brick, hollow tile walls school, concrete frame and fdn. $325,000. Wilson & Patterson, Majestic Bldg., Fort Worth, archts. CD 12/2.

Mo., Dexter—B.A. About 2/10—Consolidated School Dist. 7, Stoddard Co., C. A. Powell, pres. Bd. Educ., 1 story, brick, concrete school, approx. $270,000. Wm. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis, Zone 1, engr. and archt. CD 5/1/46.

Ill., Madison—HIGH SCHOOL—B.A. March or April—Bd. Educ., School Dist 127 of Madison Co., c/o Harris School 6 and Alton Sts., 2 story, bsmnt., brick, concrete high school, $700,000. W. B. Ittner, Inc., 408 Bd. Educ. Bldg., 911 Locust St., St. Louis 1, Mo., archt. CD 2/26/47.

LOW BIDDERS

Conn., Winsted—SCHOOL—Town, Bd. Educ., 338 Main St., Dec. 6, brick, steel school, incl. 8 rooms, auditorium, etc., from Lewis Constr. Co., Rocky Hill. **$320,000.** CD 11/18.

●N. Y., New York—BUS TERMINAL—Port of New York Auth., 111 8 Ave., Zone 11, Dec. 8, bus terminal bldg., excavation of steelwork and foundations, Contr. BT-5, from Merritt-Chapman & Scott Corp., 17 Battery Pl., Zone 4. **$8,938,617.** CD 11/30.

CONTRACTS AWARDED

Que., Quebec City—SCHOOL—Roman Catholic School Comn., 20 Richileau St., Quebec City, school for Parish of Our Lady of Pity on Gamelin St., to D. Maranda, Inc., 814 St. Vallier, Quebec City. **$251,425.** G. Chabot, 226 St. John St., Quebec City, archt.

Que., Ste. Maxine—SUB-STATION—Quebec Hydro-Electric Power Comn., 107 W. Craig St., Montreal, sub-station, to Collett Brothers Ltd., 1978 Parthenais St., Montreal. Approx. **$300,000.**

COMMERCIAL BUILDINGS

BIDS ASKED

December 28

Ala., Mobile—HOSPITAL—Providence Hospital c/o Charles H. McCauley, archt., Jackson Bldg., Birmingham, hospital. CD 4/24/46.

●Colo., Denver — DEPARTMENT STORE — B.A. 1/28—Louis W. Mack, Mack Bldg., Denver, 6 story department store, $1,000,000. Raymond Ervin, Patterson Bldg., Denver, archt. and engr. J. C. Penney Co., 16 and Champa Sts., Denver, lessee. CD 5/4.

December 29

●Ala., Mobile—HOSPITAL—Providence Hospital, c/o Charles H. McCauley, archt., Jackson Bldg., Birmingham, hospital, $3,500,000. Plans deposit $50. Extended date. CD 12/8.

N. C., Charlotte—SCHOOL, etc.—Covenant Presbyterian Church, Thomas M. Barnhardt, Jr., Gen. Chn., 120 Oakland Ave., church school, $340,000; fellowship hall, $263,000. Cram & Ferguson, 248 Boyleston St., Boston, Mass. and J. N. Pease & Co., 119½ E. 5 St., archts. CD 3/16.

Pa., Wilkes Barre—COMMUNITY—B.A. 12/29—Young Mens Hebrew Assoc., 97 S. Main St., community bldg. $500,000. Percival Goodman, 19 E. 48 St., New York 17, N. Y., archt. CD 11/18/48.

Tex., Austin—SCHOOL—B. A. 12/29—St. Stephens Episcopal School, Bishop John E. Hones, 2904 Bowman Rd., school. $250,000. Fehr & Granger, 502 E. 5 St., archts. George R. Rhine, 209 San Pedro St., San Antonio, engr. CD 6/30.

After January 1

●Pa., Phila.—BANK, etc.—Bankers Security Trust Co., Walnut and Juniper Sts., bank and office alterations, addns., Broad and Walnut Sts $1,000,000. Thalheimer & Weltz, 1325 Sansom St., archts.

●N. Y., Cooperstown—HOSPITAL—B.A 1/6—Mary Imogene Bassett Hospital, Cooperstown, hospital addn. $2,000,000. York & Sawyer, 101 Park Ave., New York, Zone 17, archts.

●Alaska, Anchorage—HOUSING—B. A. 1/10—Alaskan Air Command, Fort Richardson, Anchorage, construct, finance and manage 1,050 housing units, east area of Fort Richardson, $10,580,000; 972 units, west area $10,000,000. Extended date. CD 11/22, under Public Buildings.

●✦Alaska, Fairbanks—HOUSING—B. A. 1/10—Alaskan Air Command, Fort Richardson, Anchorage, construct, finance and manage, 877 housing units at Ladd Field, $8,770,000; 624 units at Elelson Field, $6,240,000. Extended date. CD 11/22, under Airport and Airbases

January 31

●Ga., Atlanta—HOUSING—U. S. Army, Atlata, General Depot c/o Post Engr., Atlanta, 125 family housing units to be constructed, managed and financed by private enterprise. $1,000,000. CD 10/20.

SOON LETS CONTRACT

Calif., San Francisco — RECREATION — Garibaldi c/o Rudolph Igaz, archt., 58 Sutter St., soon lets contract 1 story, mezzanine, rein.-con. recreation bldg. Approx $250,000. John J. Gould, Financial Center Bldg., engr.

LOW BIDDERS

Ky., Lebanon — HOSPITAL — Literary Society of St. Catherine of Sienna, Dec. 2, Mary Immaculate Hospital, from Al J. Schneider Co., 3720 7 St. Rd., Louisville, **$403,507.** CD 11/16.

CONTRACTS AWARDED

●Que., Greenfield Park—COTTAGES—Greenfield Home Development, Inc., 57 Ontario St., Montreal, 200 cottages on Devonshire Rd, owner builds. **$1,500,000.** R. Chalifoux, 6275 Papineau Ave., Montreal, archt.

INDUSTRIAL BUILDINGS

BIDS ASKED

Tex., Houston—PLANT, etc.—B.A. 12/30—Lester Goodson Pontiac Co., 1117 San Jacinto St., auto plant, service, shop. $125,000. Irving & Hoyt, 5519 Memorial Dr., archts. Walter D. Moore, 4605 Montrose St., and R. L. Jenkins, 4316 Blossom St., engrs. CD 10/28.

R. I., Providence—FACTORY—Bids Asked—Hingico Vanities, Inc., 12 Addison Pl., 1 story, bsmnt., 45x125 ft. brick, steel, cinder block factory, Addison Pl. **$68,000.** Dimitri & Dimitri, 17 Exchange St., archts.

SOON LETS CONTRACT

Que., Granby—BULK STATION—M. Borrowman, c/o McColl-Frontenac Oil Co., Ltd., 1010 St. Catherine St. W., Montreal, soon lets contract 1 story, part bsmnt., 40x100 ft., brick, block bulk station, concrete fdns. Approx. $75,000.

LOW BIDDERS

N. M., Lovington—POWER PLANT—Lea County Electric Co-operative, Inc., Lovington, Nov. 30, 16,000 sq. ft. steel electric power plant, concrete fdn., from Lembke Constr. Co., Hobbs. **$180,158.** Est $150,000. CD 11/29.

CONTRACTS AWARDED

Calif., South San Francisco — FACTORY — Michel & Pfeffer Iron Wks., 1415 Harrison St., San Francisco, steel factory. Owner builds. **$183,500.**

Mass., Walpole — WAREHOUSE — Kendall Mills Griswoldville Div., West St., 1 story, brick, cast stone warehouse, West St., Griswoldville, to W. W. Wyman, Inc., 113 Leydon Rd., Greenfield. Approx. **$68,000.** Charles T Main, Inc., 80 Federal St., Boston, engr.

Mo., St. Louis—FACTORY—Vernon S. Beck, 2100 Cole St., Zone 6, 1 story, 100x155 ft., brick, concrete factory addn., 2100 Cole St., separate contracts. Bert Laer, 683 Tuxedo Blvd., Webster Groves, Zone 19, archt.

Mo., St. Louis—SERVICE—Mesco, Inc., 109 N. 8 St., 1 story, 19½x24x134½ ft., concrete block, sales and service bldg., separate contracts. Theo C. Brinkman, 4239A Dewey Ave., archt.

Ore., Portland — WAREHOUSE — Pacific Northwest Ford Tractor Co., N. W. 29 and Industrial Sts., 44,000 sq. ft., 170x220 ft., rein.-

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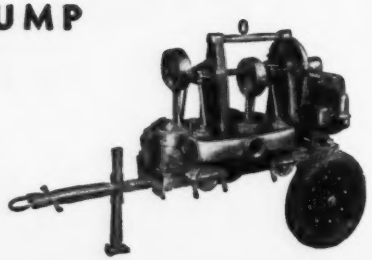

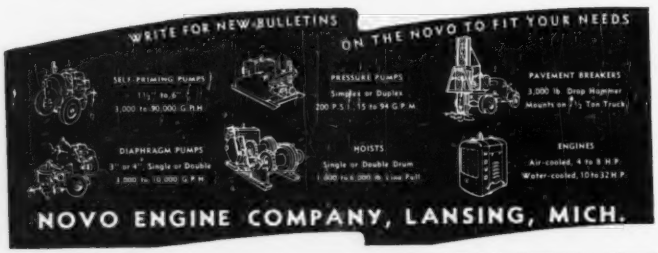
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con. warehouse, N. W. 29 and Industrial Sts., to Henry Mason & Co., 2206 N. W. Thurman St. Approx. **$200,000.** Bids 11/22, awarded 12/2. CD 11/18.

Wis., Milwaukee—GARAGE—Garfield Chevrolet, Inc., 2976 N. 3 St., Zone 12, 1 story 115x160 ft. irregular steel, brick, concrete block garage, concrete fdns. and floors, to Peters Constr. Co., 2640 N. Humboldt Ave., Zone 12. Bids 11/25. CD 11/9.

Ont., Tillsonburg—WAREHOUSE—Tillson Pipe & Supply Co. Ltd., 7 Vienna Rd., 2 story, 40x100 ft., concrete warehouse, Vienna Rd., to T. Layman, 14 Broadway. Approx. **$70,000.**

UNCLASSIFIED

BIDS ASKED

†Md., Baltimore—RADAR PLATFORM—B.A. 12/28—P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va., grounding radar platform and antenna mast at Naval Reserve Training Center, Fort McHenry, NOY-19748 (23304)/(DB-300), Spec. 23394. Plans deposit $10.

December 29

N. J., Port Newark—WHARF, etc.—At office Chief Engineer Port of New York Auth., 111 8th Ave., New York, 11, N. Y., rehabilitating wharf and pier, construct timber walkway. Contr. PN-26. Plans deposit $25. Howard S. Cullman, chn.

O., Chillicothe—LIGHTING, etc.—B.A. 12/30—Dpt. P Wks., S. O. Linzell, dir., State Dpts. Bldg., Columbus, electric lighting, power and heating, Adena Restoration Proj. Robert S. Curl & Assoc., 80 S. Third St., Columbus, consult mechanical engrs.

December 31

O., Burton—GRANDSTAND—Geauga County Fair Bd., c/o Comrs. Geauga Co., Courthouse, Chardon. 2,200 seat capacity block, steel grandstand at Geauga County Fairgrounds. $75,000. Plans deposit $5. Osborne Eng. Co., 7016 Euclid Ave., Cleveland, engr. CD 8/9/45.

January 3

Tex., Houston—WHARF—Navigation Dist. Port Comn., Wharf 3, W. F. Peavey, Houston. 500 ft. Wharf 16, 60 ft. wide. $375,000. Approx. $375,000. CD 8/28/47.

†Washington—STATIONS—B. A. 1/3—Bonneville Power Admin., 827 N. E. Oregon St., Portland Ore., 4 microwave stations, Olympia, Chehalis, Ranier and J. D. Ross, Inv. 4918. Plans deposit $25. L. C. Stewart, 827 N. E. Oregon St., Portland, Ore., engr.

California—TRAFFIC SIGNAL SYSTEMS—B.A. 1/4—State Div. Hys., P Wks. Bldg., Sacramento, traffic signal sys. and highway lighting on El Camino Real between Whipple Ave. and Woodside Rd. in Redwood City, San Mateo Co. G. T. McCoy, state hy. engr.

†Washington—TRANSMISSION LINE—B. A. 1/4—Bonneville Power Admin., 287 N. E. Oregon St., Portland, Ore., constr. Olympia-Covington, 230 kv transmission line, Thurston, Pierce and King Counties, Inv. 4917. Plans deposit $25. L. C. Stewart, 827 N. E. Oregon St., Portland, Ore., engr.

LOW BIDDERS

Fla., Pensacola—WHARF—City, Nov. 21, Palafox Wharf, from J. P. Ewin, Inc., P. O. Box 365, Mobile, Ala., **$395,138.** CD 11/10.

Texas—RURAL DISTRIBUTION LINE—Brazos River Transmission Electric Co-operative, Inc., Waco, Nov. 16, 25 mi. single pole, 69 kv construction, No. 1/0 type F copperweld conductor, Purdon and Reagor Springs, McLennan Co., from Rural Electric Co., Shawnee, Okla., labor **$17,181,** materials by owner, **$37,000,** total $54,181. Est. $50,000. CD 11/2.

†Wash., Arlington—TRANSMITTER BLDG. Yards & Docks Annex, Navy Dpt., Arlington, Va., Dec. 9, 152x185 ft., rein.-con. transmitter bldg. at Jim Creek Naval Communication station, Specs. 21922, from Construction Engineers & Contractors, Inc., 801 Port of Tacoma Rd., Tacoma, **$999,735.** CD 10/20.

CONTRACTS AWARDED

Ind., Ellettsville—DRIVE-IN THEATRE—Cascade Amusement Corp., Roy O'Keefe, pres., Andy Dietz, secy.-treas., Vincennes, 500 car drive-in theatre, State Hy. 46, separate contracts, approx. **$100,000.**

Ind., Ellettsville—DRIVE-IN THEATRE—James Cramer, Martinsville Lumber Co., Martinsville, drive-in theatre, on site east of railroad on State Hy 46, separate contracts, approx. **$60,000.**

Ind., Jasper—DRIVE-IN THEATRE—John Ackerman, Emil Burger et al, Jasper, 400 car drive-in theatre, known as Family Drive-in, on 10 acre site, west side of State Hy. 45, 2 mi south of city, separate contracts, approx. **$80,000.**

Ind., Jasper—DRIVE-IN THEATRE—Jasper Drive-in Theatre Corp., Jasper, 300 car drive-in theatre, on 5 acre tract on State Hy. 45-56 north of city limits, separate contracts, approx. **$60,000.**

Ind., Mt. Vernon—DRIVE-IN THEATRE—Thomas Baldwin & John H. Leffel, Mt. Vernon, 300 car drive-in theatre, on 11.6 acre site, State Hy. 62, ¼ mi east of city limits, separate contracts, approx. **$60,000.**

Ind., New Haven—DRIVE-IN THEATRE—Horace E. Shock, Lima, O., 700 car drive-in theatre, on 10 acre site, U. S. Rte. 30, west of here, separate contracts, **$150,000.**

Ia., Council Bluffs—DRIVE-IN THEATRE—Tri-States Theatres Corp., Wm. Miskell, dist

mgr., 1518 Harney St., Omaha, Neb., 900 car drive-in theatre, separate contracts, approx. **$100,000**, CD 11/17.

Maryland—CAMP—Wilmington (Del.) Girl Scout Council, 1300 Delaware Ave., Wilmington, Del., 1 section Girl Scout Camp imprvs., concrete block, frame dining hall; 1 story, admin. bldg.; infirmary, 2 houses, 1 cabin, Cecil Co., to R. Mortenson, 17 River Rd., East Norwalk, Conn., **$120,000**. W. Ellis Preston, 903 Jefferson St., Wilmington, Del., archt.

Mo., Kirksville—DRIVE-IN THEATRE—Day Mangus, Kirksville 500 car drive-in theatre, 1 mi. north of city limits, separate contracts, **$80,000**.

Montana—RAILROAD IMPRVS.—Northern Pacific Ry., R. Blum, ch. engr., 176 E. 5 St., St. Paul, Minn., grading, cut in hill, removing more than 350,000 cu. yd. earth and rock, to Foley Bros., Inc., 900 New York Bldg., St. Paul, Minn.; owner will lay 6,642 ft. railway track when grading is completed. Total cost **$301,000**.

Neb., Beatrice — DRIVE-IN THEATRE — Alspach & Anderson, c/o Starview Drive-in, McPherson, Kan., 450-car drive-in motion picture theatre, to be known as the Hillcrest Drive-in separate contracts Approx. **$75,000**.

◆†Washington—RAILWAY RELOCATION—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., construct 17.8 mi. Spokane, Portland & Seattle Ry. relocation for McNarry Dam, CIVENG-45-164-50-43, to Morrison-Knudsen Co., Inc., Box 450 Boise, Idaho, low **$3,275,224**. Est. $5,317,721. Bids 12/6, awarded 12/9. CD 12/8 under LB.

Wash., Seattle—PARK IMPRV.—Park Dpt., 2334 4 Ave., Zone 1, 175x225 ft., rein.-con. bear grotto at Woodland Park Zoo, to Piskadal & Ness, 311 W 76 St., **$242,855**. Bids 12/7. CD 11/22.

Alta., Edmonton—AUTO COURT—J. Schadeck, 10410 135 St. auto court, Kingsway Ave., day labor, **$175,000**.

British Columbia — RAILWAY DEVELOPMENT—Pacific Great Eastern Ry. Co., J. M. Stewart, engr. Parliament Bldg., Victoria, steel rails and track fastenings to British Iron & Steel Corp., Ltd., 7 Park Lane London, W. 1. England. Approx. **$1,822,452**. track bolts, spikes, spring washers, to Vancouver Rolling Mills Ltd., 490 S. E. Marine St., Vancouver, **$106,155**, CD 4/15/47.

PROPOSED PROJECTS

WATER SUPPLY

Ark., Pine Bluff—Pine Bluff Water Co., Inc., (General Waterworks Co., Inc., 211 W. 5 St.) Pine Bluff, expanding water facilities, **$238,000**. CD 12/28/45.

O., London — Bd. Trustees Pub. Affairs, London, renovate, repair and modernize WW, **$100,000**.

O., Lorain—City, City Hall water plant addn. **$500,000**. Burgess & Niple, 504 E. Broad St., Columbus, survey engrs. Lewis Goodell, c/o owner, engr.

Pa., New Holland—New Holland Boro Auth., 206 E. Main St., reservoir and water lines, 30 m. g. impounding dam, **$350,000**. Van M. Glace, 1001 N. Front St., engr. CD 7/31/46.

Tex., Houston—City, M. H. Westerman, secy., City Hall, 900 Brazos St., c.i. main line e. to supply water to Ayrshire Addn. area, **$50,000**; c.i. waterlines Ayrshire Addn. **$30,000**; c.i. watermain, Irvington Blvd. **$28,000**. Hugo Zapp, c/o owner, city engr. CD 6/30/44.

Ont., Cannington—Municipality, water system **$120,000**.

SEWERS, WASTE DISPOSAL

Ariz. Needles—City, sanitary sewerage sys., sewage treatment plant **$383,000**. Ludwig Bros. Eng. Co., 608 S. Fair Oaks St., Pasadena, consult. engr.

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N. Y., Evans—Town, sewer facilities, treatment plant **$500,000.**

O., West Union—Village, Minor C. Wolfe, mayor, City Bldg., sanitary sewerage sys., disposal plant, 50,960 lin. ft. vitr. clay pipe, 4 lift stations, street repaving, imhoff tank, drying beds, dosing tanks, trickling filters, settling tank, water service, electrical work, etc. **$280,470.** Alfred E. Stilson & Assoc., 209 E. High St., Columbus, consult. engrs. CD 5/15/47.

Pa., Media—Media Boro, Boro Hall, sewage disposal plant. Approx. **$200,000.** CD 10/11/45.

●**Pa., York**—City, Felix Bentzel, mayor, City Hall, sewage disposal and incinerator plant. **$2,500,000.** Albright & Friel, Inc., 1528 Locust St., Phila., engr. Wm. E. Weigle, city engr. CD 8/21/47.

Tex., Odessa—City, storm sewers. **$275,000.** Joe E. Ward, Nacol Bldg., Wichita Falls, consult. engr. CD 12/5.

●**Alta., Calgary**—City, D. Mackey, mayor, storm sewers. Approx. **$2,000,000.** CD 12/2/48.

Ont., Chesley—Elderslie Twp., J. W. Young, clk., drainage sys **$150,000.**

Ont., Milton—Municipality, sewers. **$300,000.**

Que., Joliette—City, C. Bonni, clk., sewer and collector sewer in west section of city. **$460,000.** J. A. Lalonde & Co., 953 Dunlap Ave., Montreal, engrs. CD 10/3/45.

BRIDGES

●**New Jersey and Pennsylvania** — Delaware River Joint Comn., Camden Plaza, Camden, N. J., bridge across Delaware River between Morrisville, Pa., and Trenton, N. J **$13,700,000.**

Tenn., Nashville—City, City Hall, repair Cleveland St. Viaduct. **$100,000.** Howard-Needles-Tammen & Bergendoff, 921 Walnut St., Kansas City, Mo., consult engrs.

Ont., Weston—Canadian Pacific Ry. Co., J. E. Armstrong, ch. engr., Windsor Station, Montreal 3, Que., subway at Lawrence Ave. **$100,000.**

STREETS AND ROADS

Tex., Hallettsville—Lavaca Co., Hallettsville, bond election Dec. 29, 8 mi. farm-to-market road constr. and asph. paving a continuation of Hallettsville to Provident City Rd. **$150,000.** CD 11/17.

EARTHWORK, WATERWAYS

Okla., Wagoner—City, voted bonds, boat harbor and pleasure pier development **$300,000.** Wood & Craig, Philtower Bldg., Tulsa, consult. engrs. CD 11/3.

AIRPORTS AND AIRBASES

Okla., McAlester—AIRPORT—City, voted bonds, municipal airport **$200,000.** Rex Collins, McAlester, consult engr. CD 10/5.

Tex., San Antonio—HANGAR, etc.—Alamo Aviation, Inc., c/o Municipal Airport, 110x250 ft. administration bldg., hangar, 22x250 ft. lean-to, hollow tile walls, concrete slab fdn., to H. B. Zachry Co., Box 2570, Approx. **$260,000.** CD 11/29

LATIN AMERICA

Argentina, Buenos Aires—Federation of Milk Producers, Buenos Aires, plans dairy products plant. **$30,000.**

Netherland West Indies, Aruba—Govt. of Holland (Colonial Admin.), Aruba, plans new harbor facilities, 7 docks, warehouses and transit sheds, at Orangestad. **$6,000,000.** CD 1/16/48.

PUBLIC BUILDINGS

Ala., Athens—HOUSING—Athens Housing Auth., c/o Allen Northington, archt., Florence, housing development. Approx. **$250,000.**

Ala., Auburn — HIGH SCHOOL — Lee Co. plans by R. A. Bond, 312 Mallory St., Montgomery, high school addn. **$250,000.**

●†**Ala., Birmingham**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, **$6,600,000.** CD 10/12/45.

Ala., Conecuh—HOSPITAL—Evergreen Co., hospital. **$250,000.**

Ala., Decatur—HOUSING—Decatur Housing Auth., Decatur, 250 housing units. Approx. **$250,000.**

Ala., Eufaula — HOSPITAL — Barbour Co., hospital. **$410,000.**

Ala., Jackson—HOSPITAL—Clarke Co., hospital. **$250,000.**

●**Ala., Mobile**—HOSPITAL—District 6, T. B. Board, c/o Harry Inge Johnston, archt., 60 St. Francis St., TB Hospital, **$1,200,000.**

Ala., Oneonta — HOSPITAL — Blount Co., Oneonta, plans by Charles H. McCauley, Jackson Bldg., Birmingham, hospital, **$500,000.** CD 2/4/46.

Ala., Opelika—HOSPITAL—Lee Co., Opelika, plans by Charles H. McCauley, Jackson Bldg., Birmingham, hospital. **$765,000.**

Ala., Vernon — HOSPITAL — Lamar Co., plans by W. L. Rosamond, Columbus, Miss., hospital. **$350,000.**

†**Ariz., Coolidge** — POST OFFICE — Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, etc. **$210,000.** CD 10/15/45.

†**Ariz., Tempe**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, etc. **$283,000.** CD 10/15/45.

†**Ark., Camden**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, etc. **$280,000.** CD 10/15/45.

†**Ark., Fayetteville**—POST OFFICE—Pub. Bldgs., Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, etc. **$710,000.** CD 10/15/45.

Ark., Fordyce — HOSPITAL — Dallas Co., Fordyce, plans by Trapp & Chippard, Pyramid Bldg., Little Rock, hospital, **$300,000** with equip. CD 11/7.

Ark., Paragould—COMMUNITY CENTER—Paragould Civic Club, Paragould community center. **$250,000.**

●†**Calif., Bakersfield**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, etc. **$1,830,000.** CD 10/15/45.

†**Calif., Bellflower**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post, office, etc. **$550,000.** CD 10/15/45.

†**Calif., El Monte**—POST OFFICE—Pub. Bldgs Admin., 18 and F. Sts. N. W., Wash. 25, D. C., post office, etc. **$425,000.** CD 10/15/45.

Calif., Los Angeles—City Bd. Educ., 1425 S. San Pedro St., plans by Spaulding, Rex, De Swarte, 3305 Wilshire Blvd., vocational shop at Theodore Roosevelt High School. **$380,000.**

●†**Calif., Los Angeles**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, Eagle Rock Station, **$276,000;** post office, Terminal Annex, **$6,800,000.** CD 10/16/45.

†**Calif., National City**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, etc., **$290,000.** CD 10/17/45.

Calif., Petaluma — WAR MEMORIAL — Sonoma Co., Courthouse, Santa Rosa, plans by J. Clarence Felciano, 4010 Montecito Ave., Santa Rosa, 2 story, rein.-con. war memorial bldg. **$320,000.**

Calif., Pomona — SCHOOL — Pomona City School Dist., plans by Marston & Weston, 385 E. Green St., Pasadena, 50,000 sq. ft. San Antonio School. Approx. **$250,000.**

●†**Calif., San Francisco**—POST OFFICE—Pub. Bldg. Admin., 18 and F Sts. N. W., Wash 25, D. C., post office, Rincon Annex, **$3,180,000.**

†**Calif., Van Nuys**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts., N. W., Wash. 25, D. C., post office, etc. **$575,000.** CD 10/19/45.

†**Calif., Wilmington**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash., 25, D. C., post office, etc. **$470,000.** CD 10/19/45.

†**Calif., Yreka**—POST OFFICE—Pub. Bldgs. Admin. 18 and F Sts. N. W., Wash. 25, D. C., post office, etc. **$328,000.** CD 10/19/45.

●**Colo., Boulder**—STUDENT CENTER—University of Colorado, Boulder, plans by Trautwein & Howard, 1411 Walnut St., Phila., Pa., 2, 3 and 4 story Rural Italian style brick, native sandstone memorial student center. **$2,500,000.** James M. Hunter, 2049 Broadway, Boulder, & Smith, Hegner, & Moore, 422 Colorado Bldg., Denver, consult. engrs.

●†**Colo., Denver**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, Terminal Annex, **$3,380,000.** CD 10/19/45.

†**Conn., Hartford**—ARMORY—U. S. Eng., Bldg. 21, Naval Drydocks, South Boston, Mass., 1 story, brick masonry armory, **$350,000.**

Del., Milford—POWER PLANT—City, municipal power plant, **$400,000.** B. O. Vannort, 513 S. Tryon St., Charlotte, N. C., consult. engr.

●†**Ga., Atlanta**—POST OFFICE GARAGE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office garage, **$2,750,000.**

†**Ga., Thomasville**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office and courthouse, **$860,000.** CD 10/23/45.

●**Idaho, Boise** — AUDITORIUM — City, City Hall, civic auditorium, **$1,500,000.**

†**Ill., Benton**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office and court house, **$474,000.** CD 10/24/45.

†**Ill., Chicago**—POST OFFICE—Pub. Bldgs. Admin., 18 and F. Sts., N. W., Wash. 25, D. C., post office, Jackson Park Station. **$460,000.** CD 10/25/45.

●†**Ill., East St. Louis**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office and courthouse, **$2,380,000.** CD 10/25/45.

†**Ill., North Chicago**—POST OFFICE, etc.—Pub. Bldgs., Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, etc. **$415,000,** CD 10/26/45.

●†**Ill., Rock Island**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, etc. **$1,300,000.** CD 10/26/45.

†**Ill., Winnetka**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F. Sts. N. W., Wash. 25, D. C., post office, etc. **$316,000.** CD 10/26/45.

†**Ind., Bloomington**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, etc. **$725,000,** CD 10/29/45.

●†**Ind., Evansville** — POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, customhouse and courthouse, **$3,510,000.** CD 10/29/45.

●†**Ind., Indianapolis**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. Wash. 25, D. C., post office, Illinois St. Station, **$3,600,000,** CD 10/29/45.

†**Ind., Madison**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, etc. **$320,000,** CD 10/29/45.

†**Ia., Ames**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, College Station, **$485,000,** CD 10/29/45.

†**Ia., Burlington**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F. Sts. N. W., Wash. 25, D. C., post office, etc. **$720,000,** CD 10/29/45.

●**Ia., Cedar Falls**—SCHOOL—Bd. Educ., Cedar Falls, plans by Tinsley, Higgins & Lighter, 526 Liberty Blvd., Des Moines, high school. **$1,-000,000.**

●†**Kan., Kansas City**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office and courthouse. **$2,700,000,** CD 10/30/45.

†**Kan., Leavenworth**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts., N. W., 25, D. C., post office and courthouse, **$545,000,** CD 10/30/45.

Kan., Olathe—SCHOOL—Bd. Educ., Olathe, voted bonds, school addn., imprvs. **$250,000.** E. M. Fuller, 14 and Howell Sts., North Kansas City, Mo., archt. CD 11/15.

●**Kan., Salina**—SCHOOL—Bd Educ., Salina, approved $875,000 bonds Nov. 15, high school. **$2,000,000.** J. W. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., archt. CD 10/27.

†**Kan., Salina**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts., N. W., Wash. 25, D. C., addnl. story, remodeling post office and courthouse, **$495,000,** CD 10/30/45.

Ky., Ashland — SCHOOL — State Vocational School, Ashland, school, **$330,000.**

●†**Ky., Frankfort**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office and court house, **$1,060,000,** CD 10/30/45.

†**Ky., Lexington**—HOSPITAL—Pub. Bldgs., Admin., 18 and F Sts. N. W., Wash. 25, D. C., public health service hospital, **$900,000,** CD 11/2/45.

Ky., Louisville — HOUSING — Municipal Housing Comn., 2 and York Sts., plans by Fred Hartstern, Realty Bldg., Ossian P. Ward, Washington Bldg., and Louis & Henry, Starks Bldg., 2000 low cost public housing units. **$304,000.**

●†**Ky., Newport**—POST OFFICE, etc.—Pub. Bldgs., Admin., 18 and F Sts., N. W., Wash., 25, D. C., post office, etc. **$655,000,** CD 11/2/45.

Ky., Scottsville—HOSPITAL—Fiscal Court Allen Co., Scotsville, plans by Otis & Grimes, Tyler Bldg., Louisville, 157x196 ft brick on concrete block, cut stone, etc., war memorial hospital, concrete slab floor. **$336,000,** CD 1 4.

†**La., Amite**—POST OFFICE, etc.—Pub. Bldgs., Admin., 18 and F Sts., N. W., Wash., 25, D. C., post office, etc. **$250,000.** CD 11/2/45

●†**La., Carville** — HOSPITAL—Pub. Bldgs., Admin., 18 and F Sts., N. W., Wash., 25 D. C., marine hospital, **$3,200,000,** CD 11/2/45.

†**La., Lafayette**—POST OFFICE, etc.—Pub. Bldgs., Admin., 18 and F Sts., N. W., Wash., 25, D. C., post office, etc. **$677,000,** CD 11/2/45.

●†**La., Lake Charles**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts., N. W., Wash., 25, D. C., post office and court house, **$1,490,000,** CD 11/2/45.

●†**La., New Orleans**—POST OFFICE, etc. Pub. Bldgs., Admin., 18 and F Sts., N. W., Wash., 25, D. C., post office, etc., **$14,900,000.**

†**Me., Jackman**—BORDER STATION—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., border station. **$385,000,** CD 11/2/45.

Md., Annapolis—HOUSING—City of Annapolis Housing Auth., 29 College Ave., plans by Rogers & Taliaferro, 49 College Ave., 85 unit apartment, white, **$300,000;** two 60-unit, apartments, colored, **$500,000.**

●†**Md., Baltimore** — OFFICE — Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash 25, D. C., federal office bldg **$8,160,000.** CD 11/2/45.

●†**Mass., Boston** — HOSPITAL, etc. — Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., marine mospital, **$2,900,000;** post office, Dorchester Center Station, **$383,000.** CD 11/5/45.

Mass., Framingham — SCHOOL — Town. School Bldg. & Planning Bd., plans by Anderson & Nichols & Co., 53 State St., Boston, 2 story, bsmnt., brick school. Approx. **$250,000.**

Mass., Grafton—HIGH SCHOOL—Town, Bd. Selectmen, Town Hall, plans by Sturgiss Assoc., Inc., 120 Boylston St., Boston, 2 story, basic brick, steel, high school, **$650,000.** CD 8/12.

Mass., Hanson—SCHOOL—Town, Bd. Educ., Town Hall, plans by Wm. G. Upham, 700 Washington St., Norwood, 2 story, bsmnt., brick, steel school. **$250,000.**

†**Mich., Dearborn** — POST OFFICE — Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, Monroe Blvd. Station. **$375,000.** CD 11/5/45.

(Continued on page 71)

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(Continued from page 72)

●†**Mich., Detroit**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office, North End Station **$465,000**; post office Roosevelt Park Annex **$5,150,000**. CD 11/5/45.

●**Mich., Detroit**—LABORATORY—Wayne University, 4641 Cass St., plans by Pilafia & Montana, 112 Madison Ave., rein.-con., structural steel, masonry, stone, Kreske-Hooker Scientific Laboratory, **$1,000,000**. Smith Hinchman & Grylls, 800 Marquette Bldg., engrs. CD 1/4/46.

Mich., East Lansing—CHURCH, etc.—Michigan State College, East Lansing, plans by Ralph Calder, 1212 Kales Bldg., Detroit, masonry stone, brick, concrete, structural timbers church, chapel, memorial, **$300,000**. Snyder & McLean, 2214 Penobscot Bldg., Detroit, engrs.

†**Mich., Midland**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$330,000**.

Mich., Newberry — STORAGE — Mich. Dpt. Admin., A. N. Langins, dir., 115 A. State Office Bldg., Lansing, plans by Sewell & Schoettley, 730 Mich. Bldg., Detroit, 2 story, rein.-con. structural steel, masonry, storage bldg., Newberry State Hospital. **$250,000**.

Mich., Pontiac—SCHOOL—Bd. Educ., 40 Patterson St., plans by Schley & Ward, 16851 James Couzens Hy., Detroit, 2 story, rein.-con., masonry Bagley School addn. **$300,000**.

Mich., St. Joseph—JAIL, etc.—Bd. Supervs. Berrien Co., St. Joseph plans by Smith, Hienhman & Grylls, 800 Marquette Bldg., Detroit, jail and court house, **$800,000**.

Minn., Albert Lea—SCHOOL—Bd. Educ., J. J. Halverson, supt., Schools, Albert Lea, voted bonds school, **$511,123**; imprv. athletic field, incl. bleachers, etc. Approx. **$70,000**. LeRoy Gaardner, Albert Lea, archt. CD 11/3.

Minn., Robbinsdale—SCHOOLS—Bd. Educ., A. G. Bossert, clk., voted **$650,000** bonds Dec. 1, school and school addn. CD 11/29.

†**Miss., Greenville**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, **$473,000**. CD 11/7/45.

†**Miss., Tupelo**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, **$767,000**.

●†**Mo., Cape Girardeau**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office and court house, **$1,100,000**. CD 11/7/45.

†**Mo., Independence**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$540,000**. CD 11/7/45.

†**Mo., Moberly**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, **$405,000**. CD 11/7/45.

●†**Mont., Billings**—OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., federal office bldg., **$4,770,000**. CD 11/7/45.

†**N. J., Jersey City** — POST OFFICE — Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, Bergen Station, **$353,000**. CD 11/9/45.

N. J., Pennsgrove—SCHOOL—Penns Grove-Upper Penns Neck Consolidated School Dist., 28 School Lane, plans by Alexander Merchant & Sons, 1 Elm Row, New Brunswick, school, **$500,000**.

†**N. J., Teaneck**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$409,000**. CD 11/9/45.

●**N. Y., Brooklyn**—HOUSES—New York City Housing Auth., 63 Park Row, New York, Zone 7, Breukelen Houses, 1,600 apartment proj. on 49.11 acre site bounded by Flatlands, Louisiana and Stanley Aves., 103, 105 and 108 Sts., and Glenwood and Farragut Rds. **$16,000,000**. CD 9/14.

†**N. C., Goldsboro**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$605,000**.

N. C., Greensboro — SCHOOL — City, plans by McGinn & Northeet, Greensboro, Westover Terrace School. **$267,500**.

†**N. C., Lexington**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts., N.W. Wash. 25, D. C., post office, etc. exten. remodeling. **$305,000**. CD 10/11/45.

†**N. D., Dunseith**—BORDER STATION—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., border station. **$265,000**. CD 11/14/45.

●†**O., Akron**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, etc. **$4,100,000**. CD 11/15/45.

O., Berea—SCHOOL—Bd. Educ., East Rd., plans by Mellonbrook, Foley & Scott, 26 Front St., Central School, Maple St. **$460,000**. CD 12/16/43.

O., Blue Ash—Sycamore Twp. Bd. Educ., Frank Ferris, clk., 4710 Cooper Rd., voted bonds 1 and 2 story, bsmnt., brick school alterations, addns. **$470,000**.

●**O., Canton**—City, bond election in February, municipal college on 52 acre Timken estate in northwest sect. of city. **$1,000,000-$1,500,000**.

●**O., Cleveland** — HOUSING — Metropolitan Housing Auth., c/o E. J. Hahn, N. B. C. Bldg., 600 unit housing **$4,270,000**.

●†**O., Cleveland**—POST OFFICE, etc—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, Parcel Post Annex, **$8,500,000**; post office garage, **$1,960,000**. CD 11/15/45.

●†**O., Cleveland**—HOSPITAL—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., plans by W. R. Talbot,

c/o owner, 9 story, bsmnt., penthouse, 500-bed brick, steel veterans hospital, incl. 3 wings, 10723 East Blvd. and 10710-10728 Magnolia Dr. **$7,500,000.** CD 9/26/45.

●**O., Dayton**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, Parcel Post Annex. **$4,800,000.** CD 11/15/45.

O., Indian Hill—SCHOOL—Bd. Educ., Walter E. Etevens, clk., Indian Hill, plans by Taylor & Porter, 915 Plainville Pike, Mariemont, 1 story, concrete bsmnt. brick school addn. **$290,000.**

●**O., Mansfield**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, etc. **$1,030,000.** CD 11/15/45.

O., Oxford—LIBRARY—State Dpt. P. Wks., S. O. Linzell, (Bldr.) Columbus, plans by Potter, Tyler & Martin, 128 E. 6 St., Cincinnati, library addn., Miami University. **$450,000.** Fosdick & Hilmer, Union Trust Bldg., Cincinnati, consult. engrs. H. G. Allen, c/o owner, archt. CD 10/28.

●**O., Toledo**—POST OFFICE GARAGE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office garage. **$1,450,000.** CD 11/15/45.

O., Washington Court House — POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, etc. extens. and remodeling. **$255,000.**

●**Okla., Oklahoma City**—HOSPITAL—Bd. Affairs, Capitol, neuropsychiatric hospital at University Hospital. **$1,564,800.**

Ore., Vale—SCHOOL—Vale School Dist., Vale, voted **$270,000** bonds 12 room and gymnasium addn. of grade school, stone constr. Charles Johnston, Payette, Idaho, archt.

●**Pa., Bloomsburg**—DORMITORY, etc.—General State Auth., 18 and Herr Sts., Harrisburg, men's dormitory, **$430,000;** auditorium, **$402,000;** heating plant, **$230,000,** all at Bloomsburg State Teachers College. **A. F. Jones, c/o** owner, ch. engr.

Pa., Cheyney — POWER PLANT — General State Auth., 18 and Herr Sts., Harrisburg, power plant and water well at Cheyney Training School for Teachers. **$460,000.** A. F. Jones, c/o owner, ch. engr.

Pa., Clarion—DORMITORY—General State Auth., 18 and Herr Sts., Harrisburg, men's dormitory addn., **$266,000;** boiler plant, **$462,000** both at Clarion State Teachers College. A. F. Jones, c/o owner, ch. engr.

Pa., Downingtown—HIGH SCHOOL—Downingtown Joint High School Bd., Downingtown, Junior-Senior High School. **$500,000.**

Pa., Edinboro — DORMITORIES — General State Auth., 18 and Herr Sts., Harrisburg, women's dormitory, **$295,000;** men's dormitory, **$328,000,** both at Edinboro State Teachers College. A. F. Jones, c/o owner, ch. engr.

●†**Pa., Harrisburg**—POST OFFICE, etc. Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office and courthouse. **$6,100,000.** CD 11/20/45.

●**Pa., Indiana**—DORMITORY, etc.—General State Auth., 18 and Herr Sts., Harrisburg, men's dormitory, **$946,000;** rewiring music conservatory, kitchen, dining room and cottages **$59,000,** both at Indiana State Teachers College. A. F. Jones, c/o owner, ch. engr.

†**Pa., Lebanon**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, etc. **$525,000.** CD 11/20/45.

Pa., Phila. — FIRE HOUSES — Dpt. Pub. Safety, City Hall, 4 fire houses, Van Kirk and Jackson Sts., 12 St. and Oak Lane Ave.; Somerville and Rising Sun Aves., 19 and Oxford Sts. **$600,000;** plans by Max Bieberbach, 843 N. 19 St., fire and police station, 20 and Federal Sts. **$250,000.**

●†**Pa., Phila.** — PSYCHIATRIC INSTITUTE — Dpt. Welfare, Harrisburg, construct Eastern Psychiatric Institute, Abbottsford Rd. and Henry Ave. **$4,000,000.**

●†**Pa., Phila.**—POST OFFICE GARAGE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office garage. **$3,360,000.** CD 4/28.

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†**Pa., Pittsburgh**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, Homewood Station, **$280,000.** CD 11/21/45.

●**Pa., Scotland**—HOUSING, etc.—General State Auth., 18 and Herr Sts., Harrisburg, housing for boys, **$773,000;** rehabilitation main admin., bldg. **$770,000** both at Pennsylvania Soldiers Orphan School, A. F. Jones, c/o owner, ch. engr. CD 2/10.

Pa., Scranton — BOILER PLANT — General State Auth., 18 and Herr Sts., Harrisburg, boiler plant at Pennsylvania State Oral School for the Deaf. **$324,000.** A. F. Jones, c/o owner, ch. engr.

†**Pa., Sharon**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, etc. **$356,000.** CD 11/21/45.

Pa., Shippensburg—AUDITORIUM—General State Auth., 18 and Herr Sts., Harrisburg, auditorium at Shippensburg State Teachers College. **$516,000.** A. F. Jones, c/o owner, ch. engr.

Pa., Slippery Rock—HEATING PLANT—General State Auth., 18 and Herr Sts., Harrisburg, steam heating plant at Slippery Rock State Teachers College **$661,000.** A. F. Jones, c/o owner, ch. engr.

†**Pa., State College**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, etc. **$765,000.** CD 11/21/45.

†**Pa., Wilkes-Barre**—FEDERAL, etc.—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., federal bldg. and garage. **$800,000.**

R. I., East Providence—SCHOOL—Town, Carl T. Thompson, supt., East Providence, plans by Milton R. Kenyon, 124 Taunton Ave., 1 story, L-shaped, brick, steel school, Newport Ave. **$250,000.**

†**R. I., Providence**—ARMORY—U. S. Eng., Bldg. 21, Naval Drydock, South Boston, Mass., 1 story brick, masonry armory.

†**R. I., Westerly**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office. **$290,000.** CD 11/23/45

●†**S. C., Charleston**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$1,700,000.** CD 11/23/45.

†**S. C., Columbia**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office exten., remodeling **$614,000.** CD 11/23/45.

●†**S. D., Rapid City**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office,etc **$1,020,000**

†**Tenn., Knoxville**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash. 25, D. C., post office, North Knoxville Station. **$540,000.**

●†**Tenn., Memphis**—POST OFFICE GARAGE —Pub. Bldgs. Admin., 18 and F Sts. N.W. Wash 25, D. C., post office garage. **$1,890,000.** CD 11/23/45

●**Tenn., Nashville** — HOUSING — Nashville Housing Auth., N. 6 St., plans by Steinbaugh & Wheeler Presbyterian Bldg., 200 unit adn. to James A. Cayce Homes; plans by Edwin Keebler, Cotton States Bldg., 500 units for Whites in South Nashville; plans by Woolwine & Harwood, American Trust Bldg., 500 units for Negroes in North Nashville; plans by Wallace & Clemmons, 1907 Davidson St., 200 units for Negroes, 12, 14 and Edgehill Aves.; plans by Clinton Brush III, 1618 Church St., and Albert Hutchison, Cotton States Bldg., 500 units for Whites in vicinity Spring and Meridian Sts. plans by Francis B. Warfield & Assoc., Nashville Trust Bldg., 400 units for Negroes between South and Division Sts. and 9 and 12 Aves Approx **$250,000** each. CD 6/14/46.

●†**Tex., Austin**—POST OFFICE, etc.—Pub. Bldgs Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office and federal office bldg. **$6,-200,000.** CD 11/23/45.

Tex., Big Spring — JUNIOR COLLEGE — Howard Co. Courthouse Bldg., voted $350,000 bonds, Junior College. **$500,000.** Puckett & French, 505 Petroleum Bldg., archts.

●**Tex., Cisco** — HOUSING—Cisco Housing Auth., Cisco, 250 low-rent housing units. **$2,062,500.**

†**Tex., Denton**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$525,000.** CD 3/30.

●**Tex., Dublin** — HOUSING—Dublin Housing Auth., Dublin, 200 low rent housing units. **$1,650,000.**

†**Tex., Galveston**—QUARANTINE STATION —Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., quarantine station. **$456,000.** CD 11/26/45.

●**Tex., Houston**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N. W., Wash. 25, D. C., post office and courthouse. **$12,300,000.** CD 4/27/46.

†**Tex., Levelland** — POST OFFICE — Pub Bldgs. Admin., 18 F Sts. N.W., Wash. 25, D. C. post office, etc. **$350,000.** CD 11/26/45.

†**Tex., McKinney**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$265,000.** CD 11/26/45.

Tex., Nederland—SCHOOL—Nederland Independent School Dist., Nederland, voted bonds, school **$700,000.** Maurice E. Walmer, Gilbert Bldg., Beaumont, archt. CD 10/28.

Tex., New Braunfels — SCHOOLS — New Braunfels Independent School Dist., New Braunfels, voted bonds, Senior High School **$300,000.** Jeremiah Schmidt, Box 429, superv. archt. Lamar and Carl Shurs School remodeling, addn., **$250,000.** H. Kellner, 406 Austin Hy., San Antonio, archt., both projects. CD 11/17.

†**Tex., Orange**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$610,000.**

Tex., San Ysidro (Delmita P. O.)—SCHOOLS San Ysidro Independent School Dist., R. Hinojosa, secy., Delmita, voted bonds Nov. 22, high school, auditorium, **$250,000;** elementary school, teachers housing units, **$250,000.** Cocke, Bowman & York, 1220 Harrison St., Harlingen, archts.

Tex., Terrell—PLANT—City, mfg. plant. **$250,000.**

†**Tex., Waxahachie**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$380,000.** CD 11/27/45.

Tex., Wichita Falls—SCHOOL—Wichita Falls Independent School Dist., Wichita Falls, plans by Ray C. Arnhold, Nacol Bldg., school. **$250,000.** CD 11/9/44.

†**Vt., Montpelier**—POST OFFICE, etc.—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office and courthouse. **$935,000.** CD 11/27/45.

Va., Charlottesville—HEATING PLANT—State of Virginia, Richmond, heating plant, etc. at University of Virginia. **$580,500.** CD 10/11/44.

Va., Roanoke—LIBRARY—City, Municipal Bldg., plans by Frantz & Addkison, State and City Office Bldg., main library. **$650,000.** CD 6/30/44.

Wash., Pasco—SCHOOL—School Bd., Pasco, plans by Wulff, Bishop & Ritter, Great Northwest Life Bldg., Spokane, high school and elementary school. Approx. **$250,000.**

●†**Wash., Seattle** — POST OFFICE — Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, Terminal Annex. **$8,000,000.** CD 11/30/45.

●†**Wash., Tacoma**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc **$4,200,000.** CD 11/30/45.

†**Wash., Vancouver**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$790,000.** CD 11/30/45

●†**W. Va., Bluefield**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office and courthouse. **$1,055,000.** CD 11/30/45

†**W. Va., Martinsburg**—POST OFFICE, etc. —Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office and courthouse. **$930,000.** CD 11/30/45.

†**W. Va., Mount Hope**—POST OFFICE— Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., federal bldg. and garage. **$850,000.**

W. Va., Parkersburg—SCHOOL—City, plans by Sansbury & Ross, Parkersburg, North Parkersburg School. **$260,000.**

●†**Wis., Green Bay**—POST OFFICE, etc.— Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office and courthouse. **$1,560,000.** CD 12/3/45.

●**Wis., Union Grove** — RECEIVING, etc.— State Dpt. P. Welfare, Madison, plans by Roger C. Kirchoff, state archt., Madison, receiving bldg. with nursery and isolation ward. **$1,500,000;** custodial and treatment bldg., **$1,000,000;** employee's bldg., **$450,000,** staff residence, **$40,000,** at Southern Colony and Training School.

†**Wis., Waukesha**—POST OFFICE—Pub. Bldgs. Admin., 18 and F Sts. N.W., Wash. 25, D. C., post office, etc. **$420,000.** CD 12/3/45.

●**N. S., Halifax**—HOUSES—Central Mortgage & Housing Corp., 395 Fleet St. W., Toronto, Ont., 500 houses for D. N. D. Prov. at Tuft's Cove (first unit of 1300 houses). Approx. **$3,000,000.**

Que., Chicoutimi—POST OFFICE—Dpt. P. Wks., Hunter Bldg., plans by G. Brault, c/o owner, post office, Racine St. Approx. **$600,000.**

COMMERCIAL BUILDINGS

Ala., Birmingham—APARTMENT DEVELOPMENT—George Bradford, c/o Van Keuren, Davis & Co., archts., American Life Bldg., apartment development. Approx. **$300,000.** CD 11/25.

Ala., Mobile — SHOPPING CENTER — Owner, c/o Richard A. Vander Sys, 61 N. Royal St., Mobile, shopping center, Approx. **$250,000.**

●**Ala., Montgomery** — HOSPITAL — St. Margaret's Hospital, c/o Sherlock, Smith & Adams, archts., 301 Washington Ave., hospital. **$3,200,000.**

●**Colo., Denver**—COLLEGE OF LAW, etc.—University of Denver, university Park Campus, college of law bldg., **$650,000;** communications institute bldg., **$1,500,000;** hotel and restaurante, student-management union bldg., **$750,-000,** all foregoing on Civic Center Campus; engineering on campus at University Park, **$1,000,000.**

Conn., Glastonbury—HOUSES—Robert T. Lang, Hebron Ave., plans by Harold L. Brown, Hall Rd Bloomfield, frame ranch type houses, 70 acre tract, Strickland St. **$250,000.**

Conn., Meriden—HOUSING—Henry Runge & Sons, 218 Elm St., 40 1-family single family units, Hanover Dist., **$300,00.**

Conn., Middletown — HOUSING — Mohawk Corp., Morris Haftel, Wadsworth St., plans by Carl Segerberg & Assoc., 363 Main St., 50 or more single homes, 40 acre tract, Markham and Hendley Street Section. **$425,000.**

●**Fla., Bradenton**—HOMES—G. M. C. Lucas & Assoc., Harbor Hills, Bradenton, 100 homes. **$1,000,000.**

Fla., Miami Beach—CLUBHOUSE—Miami Beach Athletic Club, c/o B. Robert Swartburg, archt., Miami Beach, clubhouse, **$500,-000.**

Fla., Ormond Beach—SHOPPING CENTER —Ellinor Village, c/o Abner C. Hopkins, 409 Adams St., Jacksonville, shopping center, **$250,000.**

Ga., Savannah—HOMES—Lamara Co., c/o Thomas & Hutton, engrs., 120 E. St. Julian St., 150 homes, Approx. **$300,000.**

●**Ill., Evanston**—HALL, etc.—Northwestern University, 611 Clark St., plans by Holabird & Root & Burgee, 180 N. Wabash St., Chicago, Zone 1, 3 story, bamnt., steel, concrete, stone Centennial Hall, **$3,000,000;** field house, north of adjacent to Dyche Stadium on Central Ave., **$750,000.**

Ind., Muncie—HOMES—Muncie Amvets Organization, Leroy Priest, pres., 401 E. Main St., 100 new homes in Heaton addn. in South Muncie. **$725,000.**

Ky., Louisville—CHURCH—St. Frances of Assisi Church, Bardstown Rd. at Rutherford Ave., plans by Walter Wagner & Joseph Potts, Fineastle Bldg., 85x170 ft., 850-seating church. Approx. **$250,000.**

La., New Orleans—Y. M. C. A.—Y. M. C. A., J. Calvin Williams, secy., St. Charles St. and Lee Circle, plans by Jones & Roessle, Maison Blanch Bldg., 4 story, masonry, Y. M. C. A. bldg. **$500,000.**

●**Md., Bethesda**—APARTMENTS—Eugene B. Casey, Bethesda Ave. and Clarendon Rd., 1,500 unit apartment adjacent to Naval Medical Center, Connecticut Ave. and Jones Bridge **$10,000,000.** Project subject to zoning clarification. The Casey Eng. Co., c/o owner, engr.,

Md., Edgewood—HOUSING—Harford Apartments, Inc., Harry Hart & Albert Stark (builders), 208 E. Lexington St., Baltimore, plans by Hal. A. Miller & Assoc., 2118 Maryland Ave., Baltimore, Zone 18, 2 story, bamnt., brick, block, 234-unit, garden type apartments, near Edgewood Arsenal, Albert E. Pohmer, 20 E. Lexington St., Baltimore, Zone 2, engr

Mass., Andover—FACULTY HOME—Merrimack College, Rev. Vincent A. McQuade, pres., Andover, plans by Jos. G. McGann, 129 Newbury St., Boston, 3 story, bamnt., brick, steel, faculty home on campus.

Mass., Beverly—HOSPITAL—Beverly Hospital, Frederick Ayers, pres., Beverly Hospital Assn., Herrick St., brick, steel hospital. Approx. **$250,000.**

●**Mass., Worcester**—SHOPPING CENTER—Ray Moore Assoc., 50 Frank St., plans by Albert J. Roy, 120 Front St., 1 story, bamnt. shopping center, incl. stores, theatre, **$2,000,-000.**

●**Mich., Detroit**—HOUSES—Schoolcraft Gardens Co-operative, Inc., Detroit, plans by Phillip Brenzer, 3214 Michigan Bldg., 1 story, 54-unit, homes and apartments. **$5,000,000.**

Minn., Minneapolis—HOSPITAL—Crippled Children's Relief, Inc., First Natl.-Soo Line Bldg., plans by Magney, Tusler & Setter, 202 Foshay Tower, 3 story hospital, at Bryant Long Lake, Eden Prairie Twp., west of Edina. **$600,000.** CD 9/27/48.

●**Mo., St. Louis**—HOUSING—Syndicate, c/o Sidney Salomon, Jr., Ambassador Bldg., and Sam Gerwin, 506 Olive St., plans by Leo F. Abrams, 1207 Delmar Blvd., Zone 3, 12 brick, rein.-con apartment bldgs., Hampton Ave. between Scanlon and Fyler Aves Approx. **$7,000,000.**

Mont., Roundup — HOSPITAL — Roundup Memorial Hospital Assn., Inc., Roundup, plans by J. G. Link & Co., Electric Bldg., Billings, hospital. Approx **$250,000.**

N. Y., Forest Hills—APARTMENT—Samuel J. Citrak, c/o Julius Ehrlich, archt., 141 Broadway, New York, Zone 6, 6 story apartment, Wetherole St. and 66 Ave. **$750,000.**

●**N. Y., New York**—ENGINEERING CENTER —Columbia University, 116 St. and Broadway, 6 story engineering center, W. 125 St. and Riverside Dr. **$5,000,000.**

N. Y., New York — APARTMENT — Lizel Holding Co., 15 North St., Zone 53, plans by H. Feldman, 415 Lexington Ave., Zone 17, 6 story apartment, Holland and Aster Aves. **$500,000.**

●**N. Y., Syracuse**—DORMITORY—Syracuse University, Syracuse, plans by Lorimer & Rich, 218 Montague St., Brooklyn, Zone 2, women's dormitory for 580 students to be known as Shaw Dormitory. **$1,500,000.** CD 10/30/47.

O., Mayfield Heights—STORE—Albert S Levit, 629 Euclid Ave., Cleveland, brick, block, steel store and parking area, E. Miner and Mayfield Rds. Approx. **$250,000.**

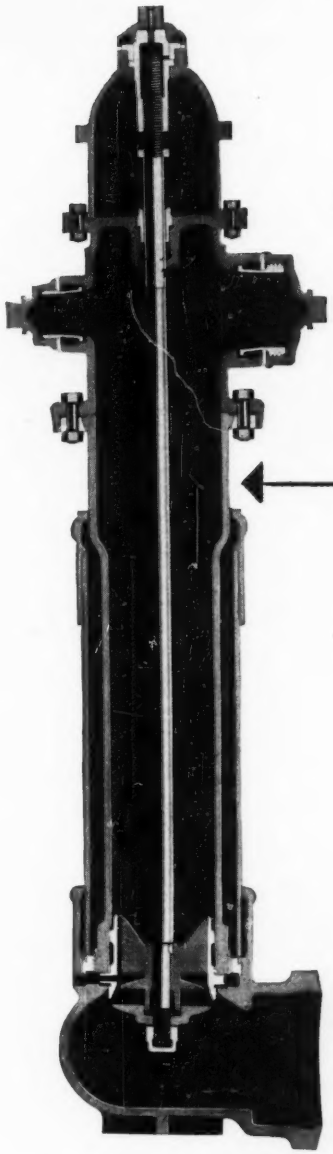
O., Parma — CHURCH — Parma Lutheran Church, 2110 North Ave., plans by Conrad, Hayes, Simpson & Ruth, 1110 Hanna Bldg., Cleveland, church and school **$400,000.**

Okla., Oklahoma City—BUSINESS CENTER —James McKinney, Leonhardt Bldg., plans by Holifield & Stone, Colcord Bldg., commercial business center, N. W. 10 and Independence Sts. **$300,000.**

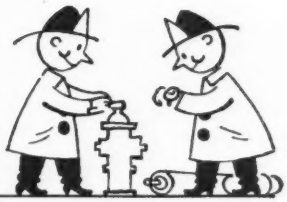
Okla., Oklahoma City—OFFICE—Oklahoma Educational Assn., Key Bldg., plans by Coston & Frankfurt, Apco Tower, office, Stiles and Mahgon Sts. **$300,000.**

Okla., Oklahoma City—RESIDENCES—N. J. Reding, 3709 S. Western St., Zone 9, plans by Pete Grant, 906 N. Walker St., 100 single family residences in Rancho Village addn. **$900,000.** CD 6/27

(Continued on page 78)



ACCESSIBILITY



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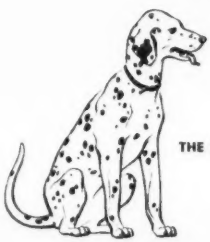

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(Continued from page 76)

Okla., Oklahoma City—BUSINESS CENTER—Sooner Homes, Inc., Apco Tower, commercial business center, S. W. 44 and Pennsylvania Sts. **$250,000.**

●**Pa., Elkins Park** — APARTMENT — N. L. Traub, 6313 Morton St., Phila., apartment development, Old York Rd. **$3,000,000.**

Pa., Pottstown—HOTEL—Corporation, c/o Pottstown Chamber of Commerce, 609 Walnut St., plans by Stopper & Lichty, 2112 Spruce St., Phila., hotel. **$400,000.** CD 9/6.

Tenn., Columbia—HOTEL—Bethel Hotel, c/o Charles W. Riggs, Shelbyville, rebuild hotel. **$250,000.**

●**Tenn., Nashville**—HOMES—Oak Hill Realty Co., c/o John W. Murphree & Sam F. Coleman, 7154 4 Ave., 130 homes near Robertson Academy. **$2,000,000.**

Tenn., Nashville—OFFICE—Owner, c/o W. H. Criswell, agt., Commerce Union Bank Bldg., plans by Hart, Freeland & Roberts, Third Natl. Bank Bldg., office. **$600,000.**

Tenn., Nashville—STORE and OFFICE—Weiss Bros., Doctors Bldg., plans by Donald W. Southgate, Nashville Trust Bldg., store and office. **$400,000.**

Tex., Fort Worth—OFFICE—A. C. Luther Realty Co., 16 Avery St., Dallas, plans by Pettigrew-Worley Co., 160 Avery St., Dallas, 2 story, 20,000 sq. ft. office, concrete pier and beam fdn., air-conditioning. **$250,000.** Edward L. Kerr, 1147 Brunner St., Dallas, consult. engr.

Tex., Houston—DWELLINGS—The Bryan Co., Box 852, Pasadena, 50 frame dwellings, Westover Addn. **$350,000.**

●**Tex., Houston**—OFFICE—Jesse H. Jones, Chronicle Bldg., masonry office. Approx. **$3,000,000.**

Tex., Houston — SHOPPING CENTER — N. H. Mitchell, E. J. Gracey & Preston R. Plumb, 4550 Griggs Rd., shopping center, off Griggs and Telephone Rds. **$350,000.**

Tex., Longview—CHURCH—First Methodist Church, Longview, plans by Shirley Simons, 606 Citizens State Bank Bldg., Tyler, 3 story, 53x160 ft., brick, limestone, granite, structural steel church, concrete slab fdn., winter and summer air-conditioning. **$325,000.** CD 2/14.

Tex., Odessa—DWELLINGS—Roy E. Davis, Odessa, 40 frame dwellings. **$250,000.**

Tex., San Antonio—HOUSING—Wonder Homes, Inc., 505 Majestic Bldg., housing. **$250,000.**

●**Que., Cap de la Madeleine**—DWELLINGS—Modern Plan Development Co., Ltd., Cap de la Madeleine, 300 dwellings. **$2,000,000.**

Que., Sherbrooke—HOTEL—Alphonse Vigneault et Associates, Kingston St., plans by Audet, Tremblay & Audet, 52 Prospect St., 5 story, 50x140 ft. hotel. Approx. **$300,000.**

INDUSTRIAL BUILDINGS

Calif., Berkeley—LABORATORY—National Canners Assoc., 461 Market St., San Francisco, plans by Wurster, Bernardi & Emmons, 402 Jackson St., San Francisco, 2 story research laboratory. **$300,000.** CD 8/6/47.

Calif., Vernon—WAREHOUSE—Owens-Illinois Glass Co., 5070 and Fruitland Aves., 62,000 sq. ft., steel frame warehouse. **$135,000.** David R. Edwards, 5911 Pine Ave., **Maywood**, consult. engr.

Conn., Norwalk—FACTORY, etc.—Parkin-Elmer Corp., 535 Hope St., Glenbrook, plans by Fletcher Thompson, Inc., 211 State St., Bridgeport, 1 story, 45,000 sq. ft., brick, steel factory and 2 story office, N. Main St., **$300,000.**

Kan., Topeka — GRAIN ELEVATOR — Topeka Mill & Elevator Co., 10 St. and Santa Fe tracks, grain elevator addn. and equip., **$250,000.**

Kan., Wichita—MECHANICAL—Wichita Eagle, c/o Overend & Boucher, archts., Brown Bldg., mechanical bldg., approx. **$100,000.**

Md., Baltimore—FACTORY—E. A. Kaestner & Co., 516 N. Calvert St., repairing 3 story, brick Dairy Supply Factory. **$300,000.**

Minn., St. Paul—WAREHOUSE, etc.—Hancock-Nelson Mercantile Co., 2117 Charles Ave., plans by Magney, Tusler & Setter, 202 Foshay Tower, Minneapolis, 1 story, 260x347 ft. brick warehouse, 1 story, 99x120 ft. garage, at Hampton Ave. and Territorial Rd. **$410,000.**

Miss., Tupelo—BAKERY—Hardin's Bakeries, c/o McNair & Archer, archts., Rosenbaum Bldg., Meridian, bakery. **$250,000.** CD 10/10.

●**N. J., Weehawken** — WATER FRONT TERMINAL, etc.—New York Central R. R. G. A. Noren, ch. engr., 466 Lexington Ave., New York 17, N. Y., 1 story, waterfront terminal, warehouse and office, on 25 acre site just north of Lincoln Tunnel Approach to be occupied by United Fruit Company. **$1,000,000.**

Okla., Boise City—GRAIN ELEVATOR—Consumers Co-operative Assn., Boise City, 250,000 bu. c. grain elevator. **$130,000.**

Ore., Scappoose — PLANT — Air-Eau-Heat Co., Longview, Wash., plans by George McPhearson, Longview, Wash., reverse-cycle heating and cooling equip. plant. **$250,000.**

Neb., Omaha—SHOP—J. J. Hanighen Co., 415 S. 14 St., plans by N. S. Wallace, Omaha Natl. Bank Bldg., shop. **$200,000.**

Okla., Crescent — GRAIN ELEVATOR — Farmers Co-operative Assn., Crescent, 250,000 bu. grain elevator. **$125,000.**

R. I., Providence — FACTORY — Colonial Knife Co., Inc., 287 Oak St., plans by A. G. Caruolo, 296 Atwells Ave., 1 story, 185x200 ft. cinder block factory, Dike St. **$125,000.**

R. I., Providence—FACTORY—Ostby & Barton Co., 118 Richmond St., factory. **$250,000.**

S. C., Columbia—WHOLESALE MARKETING CENTER—State of South Carolina, Columbia, plans by Heyward Singley, 1508 Washington St., wholesale marketing center. **$650,000.** CD 3/18/47.

●**Tenn., Chattanooga**—PLANT—Quaker Oats Co., 141 W. Jackson St., Chicago, Ill., mfg. plant. Approx. **$1,000,000.**

Tenn., Gleason—PLANT—Nantz & Co., Gleason, rebuild veneer plant. **$125,000.**

Tex., Baytown—PLANT—Humble Oil & Refining Co., Baytown, reconstructing 6 acid plant units. **$200,000.**

B. C., Vancouver—PLANT—Liquid Carbonic Canadian Corp., Ltd., 2197 W. 11 Ave., plans by McCarter & Nairne, 1930 Marine Bldg., dry ice and carbonic acid gas plant and offices. Approx. **$250,000.**

Ont., Chatham — WAREHOUSE — Crothers Ltd., 1101 Millwood Rd., Leaside, plans by G. S. Adamson, 906 Younge St., Toronto, 90x120 ft. brick, steel, masonry warehouse, **$100,000.**

Ont., Long Branch—(Postal Dist. Toronto) —FACTORY—Wakefield & Co., Ltd., 67 Younge St., Toronto, factory. **$500,000.**

UNCLASSIFIED

Arkansas—TELEPHONE SERVICE—Public Service Corp., Newport, exten., imprv. telephone service Tuckerman, Swifton, Alicia and surrounding teritory. **$210,000.**

Ark., Paragould — LIVESTOCK BLDG. — Greene County Fair Assn., Paragould, 4 livestock bldgs. for fair purposes. **$300,000.**

Calif., Santa Clara—SWIMMING POOL—Santa Clara Elementary School Dist., Santa Clara, plans by L. F. Richards & Logue, 411 Lafayette St., Santa Clara, rein.-con. swimming pool and shower, locker. **$130,000.** CD 10/11/45, 10/11/46.

●**Kentucky**—RURAL DISTRIBUTION LINES —East Kentucky Rural Electric Co-operative Corp., Danville, 597 mi. 69 kw. transmission lines; 40,00 kw. steam plant at Ford. **$10,265,000.**

Md., Baltimore—SWIMMING POOL—City, Bureau Bldg. Constr., 410 Municipal Bldg., swimming pool imprvs., incl. filtration and chlorination plant, Gwynns Falls Park, **$175,000,** James Posey, 10 E. Pleasant St., mech. engr. Saxe, Willar & Robertson, 130 W. Hamilton St., structural engrs. R. E. Williams, 410 Municipal Bldg., bldg. constr. engr. CD 1/27/44.

●**Mass., Arlington**—ARENA—Town, Special Bldg. Comn., indoor sports arena, adjacent to Warren A. Pierce Stadium. **$1,000,000.**

Nebraska—RURAL DISTRIBUTION LINES —Niobrara Valley Electric Membership Corp., O'Neill, rural distr. lines, Holt Co. **$886,000,** Henningson Eng. Co., Standard Oil Bldg., Omaha, consult. engr. CD 3/17.

●**New York** — PIPELINE — Central Hudson Gas & Electric Corp., South Ave., Poughkeepsie, 40 mi. pipeline to distribute natural gas in Dutchess, Orange and Ulster Counties. **$1,700,000.**

Pennsylvania — RURAL DISTRIBUTION LINES—Somerset Rural Electric Co-operative, Inc., Somerset, 123 mi. rural distr. lines and sys. imprvs., Somerset Co. **$706,000.** CD 1/28/48.

Pa., Phila.—LIGHTING SYSTEM—Dpt. P. Wks., Thomas Buckley, dir., City Hall Annex, high power lighting sys. on 10 mi. highways. **$300,000.**

Pa., West Chester — ELECTRICAL REPAIRS, etc.—General State Auth., 18 and Herr Sts., Harrisburg, electrical repairs and fire alarm sys., **$97,000;** construct stair towers in Fresman Hall, **$60,000;** electrical repairs to men's dormitory, **$58,000,** all., at **West** Chester State Teachers College. A. F. Jones, c/o owner, ch. engr.

●**Tenn., Knoxville**—ENLARGING YARDS—Southern Railway System, R. E. Logan, ch. engr., Maintenance and Ways and Structural (Central Lines), 101 N. Gay St., enlarging John Sevier Yards. **$3,000,000.**

Texas—RURAL DISTRIBUTION LINES—Karnes Electric Co-operative, Inc., Karnes City, 65 mi. rural distr. lines and headquarters facilities, Karnes Co. **$212,000.**

Tex., Austin—SPORTS ARENA—St. Edwards University, c/o Brother Edmund Hunt, San Antonio Rd., plans by Gordon Smith, 400 Alamo Natl. Bldg., sports arena, athletic courts, stadium. **$100,000.**

●**Alberta, British Columbia and Washington**—NATURAL GAS PIPELINE—Prairie Transmission Lines, Ltd., c/o John McCauley, K. C., Aikens, MacAulay, Thompson & Tritschler, 941 Somerset Bldg., Winnipeg, Man., natural gas pipeline from Calgary west to Blairmore, Alta., to Crow's Nest Pass to point Kingsgate, B. C., to cities of Spokane and Seattle, Wash., U. S. A. **$100,000,000.**

Alta., Edmonton — ARENA — Municipality, plans by M. C. Dewar, City Hall, arena addn. **$500,000.**

Que., Lachine—SWIMMING POOL—Municipality, public swimming pool in front of Lachine Arena, **$100,000.** J. N. Beauchamp, 82 Notre Dame W., Lachine, archt. A. J. Deslaurier, city engr.

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These 75-foot tapered, fluted, tubular piles with 20-foot extensions were driven to a minimum bearing of 40 tons each by a McKiernan-Terry No. 10-B-3 Double-Acting Pile Hammer, in constructing the new highway bridge at Spring Lake, Mich. *Luedtke Engineering Co., contractors.*

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ALSO MADE BY McKIERNAN-TERRY. The same engineering and manufacturing skill that has made McKiernan-Terry Pile Hammers so outstanding in the field of construction is applied also to bulk material unloaders, coal and ore bridges, marine equipment, cranes, bridge operating mechanisms and other important machinery of service to industry, railroads and the government.

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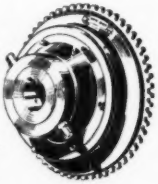
. . . to crush, screen and load up to 125 cubic yards of gravel per hour in one continuous operation, as this Universal portable unit does. Its Diesel engine and three conveyors are all equipped with Twin Disc Heavy Duty Clutches—*four* of them on the unit shown.

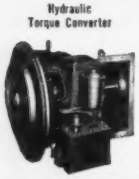
Universal has standardized on Twin Disc Clutches since 1929 in construction machinery . . . for many power functions ranging from main drive to final work applications. Dozens of leading construction equipment manufacturers rely on Twin Disc Model *EH* and *CL* Clutches to transmit the power.

Be sure to specify Twin Disc Clutches for your new construction equipment. If your present machinery needs a new clutch, call your nearest Twin Disc dealer today, or write direct to TWIN DISC CLUTCH COMPANY, Racine, Wisconsin. Request Bulletin 108-E for full information on EH Clutch, or Bulletin 120-C for CL Model. TWIN DISC CLUTCH COMPANY, Racine, Wisconsin (Hydraulic Division, Rockford, Illinois).

Twin Disc CL Clutches shine on construction jobs that call for small but mighty equipment built to work fast and hard in cramped space. They are built with one, two and three friction plates . . . sizes from 5.5" to 11.5" . . . and transmit loads of from 1.5 to 19.5 hp per 100 rpm. Maximum bore sizes are available for oversized shafts.

For earth moving and material handling, the Twin Disc *EH* Clutch incorporates all the ruggedness that can be built into a clutch for heavy duty service. This clutch provides easy engaging action, minimum overall dimensions, and moving parts constructed and tested to insure accurately balanced conditions. Sizes range from 14" to 42" . . . working capacities from 65 to 875 hp.





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CONSTRUCTION REPORTS - Second Section

WATER SUPPLY

BIDS ASKED

Tex., Galveston—B.A. 12/29—City, rein.-con. fdns. for 3 water reservoirs, $30,000. Plans deposit $10. Freese, Nichols & Turner, 2111 Natl. Standard Bldg., Houston, engrs.

Calif., Calexico—B.A. 1/3—City, 408 Heber Ave., water treatment plant, water storage reservoirs, distr. line, $250,000. Joseph F. Golden, 1461 Main St., El Centro, engr. CD 8/15.

Tex., San Antonio—B.A.—Wonder Homes, Majestic Bldg., Proj. 3, water lines, $30,000.

LOW BIDDERS

Calif., Oakland—East Bay Municipal Utility Dist., 512 16 St., Dec. 8, effluent pump. station, screen wash water piping sys. etc., Spec. SD-35, from Elmer J. Freethy, 1432 Kearney St., El Cerrito, **$376,077.** CD 11/21.

Kan., Fort Scott—City, rejected bids Nov. 28, WW. imprvs. CD 11/10.

Md., Hyattsville—Washington Suburban Sanitary Comn., Hamilton St., rejected bids Dec. 5, Contr. 67k-W, foundation and piping for addn. filtration unit and reservoir, Willis School, near Laurel, New bid date 12/14. CD 12/9.

N. C., Hope Mills—Town, J. T. Henley, mayor, Hope Mills, Dec. 7, Div. 1, water dist. sys., from N. F. Eure, Beaufort, c.i. pipe **$42,534**; from Zeigler-Cline Constr. Co., Fayetteville, transit pipe **$44,479.** CD 11/23.

Tex., Tahoka—City, Nov. 22, c.i. mains, from H. B. Jordan & Co., Plainview, **$42,360.** Est. $45,000. CD 11/11.

CONTRACTS AWARDED

Conn., Hartford—Metropolitan Dist. Comn., 115 Broad St., furnishing 34,000 ft. 6- to 16-in. c.i. pipe, Contr. 158, to U. S. Pipe & Fdry. Co., 250 Stuart St., Boston, Mass. **$87,390.** Bids 11/17. CD 11/10.

Fla., Daytona Beach—City Comn., City Hall, furnishing 7 mi. c.i. pipe and 37 tons fittings, to U. S. Pipe & Fdry. Co., St. Louis Ave., Birmingham, Ala., **$57,064.**

Kan., Fall River—City, c/o M. E. Matney, clk., WW. sys., to Cement Asphalt Products Co., Winfield, **$47,386.** Bids 11/29. CD 11/28.

Kan., Hugoton—City, WW. extens., mains only, to Burt & Binford, Hutchinson, **$87,718.** CD 11/22.

Mass., Salem—City, Municipal Offices, City Hall, pumping station imprvs., reconditioning, North Beverly Sect., to Des Roberts Electric Supply Co., 28 Mt. Vernon St., Lynn, **$55,056,** CD 11/17, under LB.

Tex., Jasper—City, c.i. waterlines, Edgewood addn., force account, **$34,000.** CD 7/9/48.

Tex., Mason—City, WW and sanitary sewerage sys. imprvs. and expans., to Clouse Bros., Kerrville, **$246,585.** H. R. F. Helland, Frost Bank Bldg., San Antonio, engr.

Alta., Banff—Government of Canada, Hunter Bldg., Ottawa, Ont., watermain, to Manix Constr. Co., Ltd., Banff, **$30,000.** Dpt. Mines & Resources, Ottawa, Ont., engr.

N. S., Lunenburg—Municipality, imprv. water sys., own forces. **$40,000.** M. Manuel, town engr.

Que., Sorel—Municipality, watermains, to Lucien Lachappelle, Sorel, **$70,000.** T. Marchand, City Hall, city engr.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Md., Hyattsville—B. A. 12/27—Washington Suburban Sanitary Comn., Hamilton St., Contr. 215-S, Cabin John Branch Trunk Sewer from C & O Canal to River Rd., Glen Echo Dist., consisting of tunnel route—4,750 ft. 24 in. special sewer pipe, 250 ft. 24 in. RCCP pipe, 4,500 cu. yd. rock, 1,500 cu. yd. rip-rap, open cut route, 4,940 ft. 24 in. special sewer pipe, 350 ft. 24 in. RCSP; 710 ft. 24 in. RCCP, 550 ft. 24 in. RCCPX, 5,400 cu. yd. rock, 1,700 cu. yd. rip-rap, common to both routes is 1,440 ft. 6- to 12-in. steel, c. i. and concrete sewers, Plans deposit $5; adv ENR 12/22. CD 10/10.

B. C., Esquimalt—B. A. 12/30—J. L. Adams, engr. Central Mortgage & Housing Corp., 360 Homer St., Vancouver, installing storm sewerage sys. and sanitary sewerage sys. for D. N. D. housing project at Belmont Park, Plans deposit $25 each.

Calif., Santa Ana—B.A. 1/3—City, 19,583 ft. 6 to 18-in. sewer lines and 11,555 ft. 4 and 6 in. c.i. water lines, facilities. Approx. $50,000. H. M. Neighbour, city engr.

Bids Asked

Tex., Houston — Standard Place Utilities Corp., c/o Douglas & Co., engrs., 1420 S. Main St., sanitary sewers. $50,000.

Tex., San Antonio—B.A.—Wonder Homes, Majestic Bldg., Proj. 3, 40,700 lin. ft. 8 and 18 in. sanitary sewers, manholes. $50,000.

SOON LETS CONTRACT

Calif., San Francisco—Stanford University Hospital, Clay and Webster Sts., soon lets contract incinerator and disposal facilities, Approx. $50,000. Spencer & Ambrose, 251 Kearny St., archts.

LOW BIDDERS

Calif., Eureka—City, City Hall, Dec. 6, pump. plant, from Baldwin Straub Corp. and F. P. Basler, 26 Francisco Blvd., San Rafael, **$77,163.** CD 11/23.

Ia., Morgan City—City, City Hall, Dec. 2, sanitary sewer imprvs., from Koller Constr. Co., Box 273, Mansfield, **$250,355.** CD 11/17.

Tex., Fort Worth—City, W. O. Jones, mgr., Dec. 8, sanitary Sycamore Creek Sewers, for Seminary Hill addn., from Joe Bland Constr. Co., 3430 Worth Hill Dr. **$83,406.** Est. $104,000. CD 11/29.

Tex., Kermit—City, rejected bids Sept. 26, sewerage sys. imprvs. L. B. **$59,000.** CD 10/4, under LB.

Tex., Stockdale — City, Dec. 6, sanitary sewerage sys. and disposal plant, from W. E. Baker, 703 Avant St., San Antonio, **$58,714.** Est. $65,000. CD 11/23.

Tex., Tahoka—City, Nov. 22, c.i. sewage collection lines, 2 lift stations, force mains, from H. B. Jordan & Co., Plainview, **$84,024.** Est. $56,000. CD 11/11.

CONTRACTS AWARDED

Ia., Des Moines—City, City Hall, Northwest sanitary sewerage sys., to Hoak Constr. Co., 621 83 St., Approx. **$140,000.** CD 1/4/46.

Ia., Jessup—City, City Hall, sewage plant, to Weldon Bros., Iowa Falls, **$60,668;** sewers to Mid-West Constr. Co., Cedar Rapids, **$106,-611,** Bids 11/28, Currie Eng. Co., Webster City, engr. CD 11/16/46.

Tex., Houston—City, City Hall, 900 Brazos St., sanitary sewers, Lockwood Dr., to Farnsworth & Chambers, Inc., Box 74, **$663,165.** Est. $788,000. Bids 11/30, awarded 12/9. CD 12/12, under LB.

Wis., Milwaukee—City, combined sewer in W. Cherry St., to F. A. Goll Co., 5230 W. State St., Zone 8, **$92,915.** Bids 12/5, awarded 12/9; combined relief sewer in E. Bradford Ave., to L & L Service Co., 906 E. Center St., Zone 12, **$188,903.** Bids 12/7, awarded 12/9.

Ont., Acton—Village, J. McGeachie, clk., sewerage sys., Contrs. A and B, incl. about 8 mi. mains sewers, etc., to Sparron Contr. Co., Ltd., 627 Adelaide St. W., Toronto, Approx. **$221,221.** Bids 11/5. CD 10/24.

Que., Ville St. Michel (Postal Dist. Montreal)—Municipality, sewers to Miron & Brothers 2201 St. Michel Rd., Montreal, **$54,575.**

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

December 27	**January 4**
Maryland	**California**
December 28	**January 5**
Louisiana	**California**
Maryland	**January 10**
	Oklahoma

LOW BIDDERS

California—State Div. Hys., Los Angeles, Dec. 8, rein.-con. box girder bridge for highway separation on Hollwood Parkway inbound over Santa Monica Parkway outbound and Hiliotrope Dr., Los Angeles Co., from Chas. McCloskey, 112 Market St., San Francisco, **$562,890.** CD 11/14.

Connecticut—State Hy. Dpt., Hartford, Dec. 12, 150 ft. (two-span continuous rolled beam bridge, 1,350 line. ft. bit. macad. approaches, Hebron Ave. over East Hartford-Glastonbury Express and grading 200 ft. Expressway, Glastonbury, from Brunalli Constr. Co., Main St., Southington, **$95,862*****three span 50 ft. each continuous rolled beam bridge over Fulton Terrace on relocation of U. S. Rt. 1, FAP UI 64 (5), New Haven, from C. W. Blakeslee & Sons, 58 Waverly St., New Haven, **$123,435***** 1,578 lin. ft. rein.-con. deck Housatonic River Bridge Shelton-Derby-Ansonia Expressway, FA 136 (4), Contr. I-B, Shelton-Derby, from Mariani Constr. Co., 222 Forbes Ave., New Haven, **$244,350.** CD 11/30.

Michigan—State Hy. Dpt., Lansing, Zone 13, Dec. 8, bridge carrying M44 (relocated) over Chesapeake & Ohio Ry. and Flat River in Belding, Proj. 8S B1 of 34-13-8, C1 (S-156 (2), Ionia Co., from L. A. Danhof, 213 E. St. Joseph St., Lansing, **$258,939.** CD 11/25.

Texas—State Hy. Comn., Austin, Dec. 13, steel Brazos River Bridge, Hy. U. S. 84, F 605 (12), McLennan Co., from Luther A. Turner & Son, Box 1125, Austin, **$380,093.** CD **11/9.**

CONTRACTS AWARDED

†Mississippi—Bureau P. Rds., Dpt. Commerce, Florence, bridge Proj. 314, Natchez Trace Parkway, Attalla Co., to Goodwyn & Murphree, Troy, Ala., **$156,400.** Bids 12/9.

New Jersey and Pennsylvania—Delaware River Joint Comn., Camden Plaza, Camden, N. J., Contr. 9, new traffic lane marker structures, etc., Delaware River Bridge, Camden Co., N. J. and Phila. Co., Pa., to Pittsburgh-Des Moines Steel Co., Neville Island P. O., Pittsburgh, Pa., **$126,755.** Bids 11/28. CD 10/28.

Wisconsin—Dairyland Power Co-operative, La Crosse, raising bridge, to Fegles Constr. Co., Wesley Temple Bldg., Minneapolis, Minn., Approx. **$64,000.**

Que., St. Ambroise de Kildare—Province of Quebec, Quebec City, bridge over River Blanche, to F. Loyer, St. Marcellin, **$55,000.** O. Desjardins, Dpt. P. Wks., Quebec City, engr.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

December 27	**January 4**
Maryland	**California**
December 28	**January 10**
Colorado	**Oklahoma**
Louisiana	**January 12**
Maryland	**New Jersey**

Calif., Los Angeles—B. A. 1/3—Bd. Supervs. Los Angeles Co., 501 Hall of Records, curbs, gutters, walks, 5,380 ft., Downey Ave., Alameda St. to Firestone Blvd., C.C.O. 633, Downey. Approx. $50,000. C. E. Arnold, co. engr.

La., Cameron—B.A. 2/6—Cameron Parish Police Jury, shortline hy. on La. side of Texas-Louisiana proj., from interior of parish toward Lake Sabine shore. $339,000.

Tex., Eagle Lake—B.A. 1/31—City, street imprvs., paving, $225,000. The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, engrs. CD 9/30.

LOW BIDDERS

California—State Div. Hys., Los Angeles, Dec. 8, plant mix on untreated rock surf. 1.5 mi. Anaheim-Telegraph Rd. between Hoefner Ave. and Atchison, Topeka & Santa Fe R. R. underpass, Los Angeles Co., from Griffith Co., 1060 South Broadway, Los Angeles, **$58,945.** CD 11/14.

Colo., Denver—City and Denver Co., City & County Bldg., Denver, Dec. 9, Creating District 228, c. conc., and necessary imprvs. in alleys, from Latimer Constr. Co., W. 9 Ave. and Wyandot St., **$61,896.**

Michigan—State Hy. Dpt., Lansing, Zone 13, Dec. 8, c. conc. 0.354 mi. M-61 from W. of U.S. Rte. 23 E., to U.S. Rte. 23, Proj. SS-6-16, C-1, Arenac Co., from Sargent Constr. Co., Saginaw, **$68,883*****grading, drainage structures 3.836 mi. U.S. Rte. 12 (relocation) from S.W. of Galesburg E. to S.E. of Galesburg, Proj. **FI-39-40,** G-2 **(FI-400)** (1) and aggregate surf. course 2.072 mi. Miller Rd. exten. from connection with proposed S. Bell E. to S. of Galesburg, FI-39-40 C-2, Kalamazoo Co., from Carl Goodwin & Sons, Allegan, **$168,489***** c. conc. paving, wid'n. 6,265 mi. U.S. Rte. 31 from approx. ¼ mi. N. of S. County Line, northerly, Proj. F-64-7, C-10, Oceana Co., from Hertel-Deyo Co., 5205 Division S., Grand Rapids, **$407,281*****9.041 mi. G.D. S., bit. binder wid'n., b. conc. resurf. course and stabilized aggregate surf. course on U.S. Rte. 112 and M-78 in Sturgis, F-78 C-4 & C-5 (F-188) (12) & M-78 18 C-2, St. Joseph Co., from **Rieth-Riley Constr. Co., South Bend, Ind., $285,760*****6.416 mi. G.D. S and aggregate surf. on M-115 S.E. of Beverly N.W. of Merrick, F-83-23 C-1 (F-372) (5), Wexford Co., from Alpine Constr. Co., St. Ignace, **$169,462.** CD 11/22.

Pennsylvania—Dpt. Forests & Waters, Education Bldg., Harrisburg, Dec. 13, access road to New Kernsville Impounding Dam, mooring slip, planting and incidental work on Schuylkill River Desilting Proj., Berks Co., from Cumberland Constr. Co., Lemoyne, **$145,142.** CD 11/23.

●**Texas**—State Hy. Comn., Austin, Dec. 13, structures, flexible base and single asph. surf. tr. 14.545 mi. Hy. FM-1097, Montgomery Co., from H. B. Henderson Inc., P.O. Drawer 313, Marshall, **$93,704*****structures, stabil. fdn. 20.611 mi. Hy. FM-594, 1071, 1070 and 145, S. 1044 (2), S. 1275 (1), S. 1276 (1) and S 1050 (3), Hale and Swisher Counties and structures, flexible base, and single asph. surf. tr. 10.527 mi. Hy. FM-1268 and 748, V. 797-2-1 and R 798-2-1, Roberts Co., from Bell, Braden, Barker & Gilvan, Inc., Herring Hotel Bldg., Amarillo, **$122,452** and **$93,122** respectively*** flexible base, asph. surf. c. conc. paving, storm sewer and bridges 1.35 mi. Hy. U.S. 75 and St. 35, UI 32 (12) and U 679 (4), Harris Co., from Farnsworth & Chambers Co., Inc., P.O. Box 74, Hunton, **$1,339,943*****flexible base, single asph. surf. tr. 14.189 mi. Hy. FM-937, S. 1250 (1), Limestone Co., from H. L. Butler & Son, P.O. Box 7112, Dallas, **$153,783,** est. **$152,000*****flexible base and double asph. surf. 9.853 mi. Hy. FM-1049, Proj. 1168-2-1, Uvalde Co., from Ernest Loyd, P.O. Box 1120, Fort Worth, **$59,028,** est. $68,000.

structures, roadbed tr. and single asph. surf. tr. 5.141 mi. Hy. FM-336, V. 515-4-2, Lavaca Co. from Heidenfels Bros., Rockport, **$58,036,** est. **$70,000*****c. conc. paving 5.302 mi. Hy. FM-365, V. 932-2-2, Jefferson Co., from Harrison Eng. & Constr. Corp., 4638 Mill Creek Parkway, Kansas City, Mo., **$210,070,** est. **$230,000*****flexible base, single asph. surf. tr. 13.641 mi. Hy. FM-541 and 1344, S. 363 (2) and R. 1122-4-1, Wilson Co., from E. E. Hood & Son, 521 Barrett Ave., San Antonio, **$68,113,** est. **$76,000*****flexible base, single asph. surf. tr. 12.44 mi. Hy. FM-941 and 1087, Nacogdoches Co., from T. R. Vardeman, Sr., P.O. Box 825, Nacogdoches, **$111,147,** est. $115,000***flexible base, double asph. surf. tr. 16.743 mi. Hy. St. 349, S. 309 (2), Martin Co., from Collins Constr. Co., Box 1192, Austin, **$153,742*****flexible base, asph. paving 8.056 mi. Hy. U.S. 81 F-273 (11) and FI-273 (12), Frio Co., from McKown &

Sons, P.O. Box 785, Austin, **$208,345**, est. $245,-000***flexible base and Durrco pavement 15.52 mi. Hy. FM-1095, S. 1294 (1) and R. 1321-1-7, Matagorda Co., from South Texas Constr. Co., San Benito, **$144,254**, est. $156,000. CD 11/9, 11/25, 11/28, 12/1.

Tex., Dallas—City, City Hall, Main and Harwood Sts., Dec. 6, 40 ft. concrete paving part of Clarendon St., from Dallas Foundation Co., Inc., 3113 Elm St., **$53,880**. Est. $80,000. CD 11/23.

Tex., Lubbock—City, Dec. 8, street imprvs. and asph. paving, (GWO-525-N), from Kerr & Middleton, Lubbock, **$148,927**, est. $190,000; 40,143 lin. ft. concrete curb and gutters, 78,752 sq. yd. pavement, caliche base, grading, drainage, etc., (GWO-525-S), from Warren & Purtell, Inc., **$138,276**, est. $200,000. CD 11/29.

CONTRACTS AWARDED

●**California**—State Div. Hys., Los Angeles, plant mix surf. 1.1 mi. Foothill Blvd. and Mt. Ave. between Shamrock Ave. and Huntington Dr., Monrovia, Los Angeles Co., to Vido Kovacevich Co., 5300 Imperial Hy., South Gate, **$1,040,469**. Bids 11/25. CD 12/1, under LB.

California—State Div. Hys., Sacramento, plant mix on cement treated surf., grade separation structure, 3.1 mi. between 2.6 mi. south of Gilroy and ½ mi. south of Sargent Overhead, Santa Clara Co., to Fredrickson & Watson Constr. Co., 873 81 Hy., Oakland, **$335,083**. Bids 11/30. CD 12/6, under LB.

Florida—State Hy. Dpt., Columbus Hotel, Miami, paving 9.363 mi. Rd. 25 northward from Haines City, Polk Co., to W. L. Cobb Constr. Co., Box 977, Tampa, **$545,087**. Bids 11/15, awarded 12/12. CD 11/23, under LB.

Kan., Salina—City, City Hall, street imprvs., to H. L. Taylor, Constr. Co., Salina, **$53,068**. Est. $54,369. Bids 11/28.

Oklahoma—State Hy. Dpt., Capitol, Oklahoma City, 0.472 mi. c. conc. pavement wid'n. U.S. 70 in Fort Towson, Choctaw Co., to Sooner Constr. Co., Barnes Bldg., Muskogee, **$84,913**. Est. $87,000. Bids 12/6, awarded 12/7. CD 11/29.

Pennsylvania—State Hy. Dpt., Harrisburg, bit. on crushed aggregate surf. 6.74 mi., one-rein.-con. arch, reconstructed base with bit. surf., T. R. 68, Knox and Farmington Twps., Clarion Co., to Nichols Constr. Co., 263 Main St., Brookville, **$567,382**. Bids 12/2. CD 12/6 under LB.

Utah — State Road Comn., State Capitol Bldg., Salt Lake City, 2 in. road mixed bit. roadway 4.628 mi. between Kamas and Wasatch Natl. Forest Boundary, PASP No. S-198 (2), Summit Co. to Vernal Sand & Gravel Co., and Murray Trucking & Excavating Co., Vernal, **$95,224**. Est. $104,731. Bids 11/29. CD 11/29.

Washington — State Hy. Dpt., Olympia, clearing, grading, draining, surf. 3.485 mi. Secondary State Hy. 9-C, Humptulips River west, F. A. S. No. S-0335 (1), Grays Harbor Co., to Goetz & Brennan, Seaboard Bldg., Seattle, Zone 1, **$283,728**; bit. penetration macadam surf. and constr. rein.-con. slab bridge 3.886 mi. Secondary State Hy. 17-A, Birdsview to Concrete, F. A. S. S-0208 (2), Skagit Co., to Northwest Constr., 3950 6 Ave. N. W., Seattle, **$296,343**. Bids 12/6, awarded 12/6. CD 11/23.

Ont., Trenton—Municipality, paving, to Warren Bituminous Paving Co., Ltd., 1454 W. Bloor St., Toronto, **$75,000**. R. E. Davey, Trenton, engr.

EARTHWORK, WATERWAYS

BIDS ASKED

✦**Illinois**—B. A. 12/28—U. S. Eng., U. S. Court House and Custom House, St. Louis 1, Mo., repairing, enlarging levees, Clear Creek and Miller Pond Drainage and Levee Dist., Union Co., CIVENG 23-065-50-49.

✦**Illinois**—B. A. 12/29—U. S. Eng., U. S. Court House, 1114 Market St., St. Louis 1, Mo., constr. railroad closure structure, Prairie Du Rocher, Illinois and Vicinity (Proj. III-D) (Edgar Lakes & Prairie Du Rocher & Modoc D. & L. Dist.), Randolph Co., CIVENG 23-065-50-47. CD 12/9.

✦**Montana**—Bids Asked—Bureau Reclamation, Dpt. Interior, Region 6, Billings, gov't. camps and an access road for Lower Marias Unit of Missouri River Basin Proj. CD 5/25/44.

LOW BIDDERS

✦**Alabama**—U. S. Eng., P. O. Box 1169, Mobile, Zone 7, Dec. 6, overburden excav., from Kershaw Mining Co., 300 S. 41 St., Birmingham, **$508,730**; access road from Newell Bros., Hope Hull, **$165,773**, both for Demopolis Lock and Dam, Demopolis, Black Warrior, Warrior and Tombigbee Rivers, Serial No. CIVENG-01-076-50-8. CD 11/23.

●✦**Arizona**—Bureau Reclamation, Dpt. Interior, Yuma, Dec. 6, earthwork, tunnel, canal lining and structures for Wellton-Mohawk Canal, Station 456 plus 00 to 969 plus 65, Gila Proj., Spec. 2822, from Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, **$1,556,388**. Est. $1,850,067. CD 11/9.

✦**Florida**—U. S. Eng., P.O. Box 4970, Jacksonville, cancelled bids to have been opened on or about Dec. 28, wid'n. Ybor Channel, Tampa Harbor, CIVENG-08-123-50-43. CD 12/1.

Minn., Olivia—Renville Co., C. A. Strom, and., Nov. 28, Co. Ditch 35A, about 19 mi. open ditch, 5 mi. tile ditches, clearing trees, etc., from P. Zimmerman Co., Brodhead, Wis., **$117,810**. CD 11/16.

✦**New Jersey**—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., rejected bids Nov. 10, maintenance dredging in Raritan River, L.B. A-Sect. 1-4. **$109,760**; B-Sect. 5-11, **$128,570**. New bids Dec. 12. CD 11/17, under LB.

✦**Oklahoma**—U. S. Eng., P. O. Box 61, Tulsa, Zone 1, Dec. 2, relief wells and drainage sys. at Canton Dam, North Canadian River, CIVENG-34-066-50-52, from Pennington-Winter Constr. Co., 2911 Apco Tower, Oklahoma City, **$202,445**. Est $125,000. CD 11/2

✦**Oregon**—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., furnishing 207,000 lin. ft. cable for use in Washington shore installations of McNary Dam, Benton Co., from Columbia Steel Co., 1331 3rd Ave. Bldg., Seattle, Wash., **$57,459**.

✦**Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, Dec. 1, Part 1, reservoir clearing, Lavon Dam and Reservoir, East Fork of Trinity River, Trinity River and Tributaries, Collin Co., approx. 7 mi. north of Rockwall, 2 mi. west if Lavon and 25 mi. northeast of Dallas, CIVENG-41-243-50-76, from Wester-Burnett Constr. Co., P. O. Box 111, Denison, **$144,053**. CD 11/2.

CONTRACTS AWARDED

●✦**Arizona** — Bureau Reclamation, Dpt. Interior, Yuma, Ariz., constr. Nelton-Mohawk Pumping Plants 1, 2 and 3, Gila Proj., Spec. 2804, to United Concrete Pipe Corp., Baldwin Park, Calif., **$1,577,907**. Bids 11/22, awarded 12/9. CD 1/2/5, under LB.

✦**California**—Bureau Reclamation, Dpt. Interior, Fresno, earthwork, 25 mi. pipelines and structures for laterals 119.6 and 122.5 and sublaterals Unit 1, Southern San Joaquin Municipal Utility Dist., Friant-Kern Canal Distribution System, Central Valley Proj., Delano, Spec. 2821, to United Concrete Pipe Corp., Baldwin Park, **$846,670**. Bids 11/29, awarded 12/12. CD 12/6, under LB.

Ill., Fox Lake—State Div. Waterways, 201 W. Monroe St., Springfield, dredging, excavating boat channels, approx. 4,300 ft. long between Nippersink and Pistakee Lakes near Fox Lake, and wid'n. channel between Pettie and Bluff Lakes, to Ray Pregenzer, Antioch, **$49,125**. Est. $45,000-$55,000. Bids 11/8, awarded 12/10. CD 11/2.

La., Thibodaux—Lafourche Parish Police Jury, Thibodaux, approx. 366,400 cu. yd. channel excav., to Halpin Constr. Co., Thibodaux, **$54,887**. Bids 10/14. CD 1/5.

B. C., New Westminster—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., reconstructing North Army Jetty, Fraser River, to Coast Quarries Ltd., Marmie Dr., Vancouver, Approx. **$138,040**. Bids 11/18. CD 11/2.

N. S., Port Maitland—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater reconstruction to Kennedy Constr. Co., Ltd., Box 240, Truro. Approx. **$125,463**. Bids 12/7. CD 11/16.

Ont., Huntsville — Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., dredging, to McNamara Constr. Co., Ltd., 71 Industrial St., Leaside. Approx. **$29,340**. Bids 10/19. CD 10/26.

Ont., Little Current—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., dredging 101,859 cu. yd. limestone rock, to Cummings Constr. Co., Montebello, Que., Approx. **$662,083**, Est. Approx. $775,000. Bids 12/7. CD 11/30.

AIRPORTS AND AIRBASES

BIDS ASKED

✦**S. D., Rapid City**—SHOP—U. S. Eng., 1709 Jackson St., Omaha, Neb., Dec. 9, shop addn. at Rapid City Air Base, Inv. 81, from Davies Constr. Co., Aberdeen, **$78,370**. Est. $96,000. CD 11/16.

Tex., Austin—AIRPORT TERMINAL—City, Dec. 6, airport terminal, from Moore Constr. Co., P. O. Box 300, **$142,717**. CD 11/18/46.

Tex., Waco—TERMINAL BLDG.—City, Dec. 6, general cntract, terminal airport bldg., service bldg., repairing maintenance bldg., at municipal airport, from Moore Constr. Co., P. O. Box 300, Austin, **$142,717**. Est. $200,000. CD 11/10.

✦**Bermuda**—BUILDINGS—U. S. Eng., 80 Lafayette St., New York 13, N. Y., U. S. A. Dec. 8, converting Bldg. 200 into 52 bed hospital and bldg. to house water evaporation unit, Fort Bell, from Joule Constr. Corp., 210 E. 40 St., New York 17, N. Y., U. S. A., **$233,-978**. CD 11/30.

CONTRACTS AWARDED

Ore., Portland—AIRPORT APRON—Port of Portland, Spalding Bldg., enlarging apron at airport and moving hangar, to Warren Northwest, Inc., 9860 N. E. Hancock Dr., **$75,732**. Awarded 12/9. J. P. Doyle, c/o owner, engr. CD 3/24.

Utah, Salt Lake City—RUNWAYS—City, c/o Irma Bitner, recdr., City and County Bldg., general contract imprvs. at Salt Lake Municipal Airport 1, incl. individual hangar area, taxiway to hangar area, road to United Air Lines kitchen, sidewalk around Island east of Admin. Bldg., etc., to Gibbons & Reed, 259 W. 3rd South St., **$49,926**. W. D. Beers, c/o owner, city engr. Robert L. Bridge, Salt Lake Municipal Airport No. 1, airport mgr. CD 3/18/48.

PUBLIC BUILDINGS

BIDS ASKED

Tex., Pecos—HIGH SCHOOL, etc.—B.A. 12/23—Reeves & Pecos Independent School Dist., Pecos, brick, hollow tile, rein.con. high school and elementary school, $275,000. Plans deposit $25. David S. Castle Co., 1082½ N. 1 St., Abilene, engr. CD 8/17.

N. C., Raleigh — EDUCATION — B.A. After 1/1—State B. Pub. Bldgs. & Grounds, George B. Cherry, supt., Raleigh, education bldg. addn. $800,000. Northrup & O'Brien, 602 Reynolds Bldg., Winston-Salem, archts.

January 3

Utah, Salt Lake City—HIGH SCHOOL—B.A. 1/3—Granite School Dist., 3212 South State St., Olympus Junior High School Addn., 2225 East 4800 South St. Young & Hansen, Pacific Natl. Life Bldg., archts.

Bids Asked

Ark., Texarkana—HIGH SCHOOL—Texarkana School Bd., Texarkana, Junior High School. Plans depoosit $25. Reinheimer & Co., National Bank Bldg., archts.

LOW BIDDERS

Calif., Baldwin Park—SCHOOL, etc.—City School Dist., 173 Holt Ave., Dec. 2, new intermediate school on Merced Ave., and administration unit and warehouse, from Louis F. Geisler, 9367 California Ave., South Gate, **$350,293**. Est. $300,000. CD 11/28.

●**Calif., Berkeley** — JURISPRUDENCE — Bd. Regents University of California, Berkeley, Dec. 9, general contract, 3 story-L-shaped, rein.-con., structural steel jurisprudence bldg., from Parker, Steffens & Pearce, 135 S. Park St., San Francisco, **$1,101,500**. CD 11/15.

Calif., Hayward—ACADEMIC BUILDING, etc.—Hayward Union High School District, Hayward, Dec. 7, high school buildings incl. 4 wood frame and cement plaster academic bldgs. and one wood frame, concrete boiler house, San Lorenzo Village, from Empire Constr. Co., Ltd., 344 Harriet St., San Francisco. **$869,000**. CD 11/22.

Calif., San Francisco—MEDICAL RESEARCH—Bd Regents University of California, Berkeley, Dec. 7, general contract, 4 story, 15,000 sq. ft., rein.-con. Medical Research Bldg., Addn. No. 2 at University of California Medical Center, from Empire Constr. Co., Ltd., 344 Harriet St., **$428,800**. CD 12/4.

Ky., Lexington—SCHOOL—Commonwealth of Ky., Div. Purch. & Pub. Properties, New State Office Bldg., Frankfort, Dec. 12, School of Journalism, University of Kentucky, from Hargett Constr. Co., 113 Walton Ave., **$422,-165**. Est. $420,000. CD 12/8.

Md., Glen Burnie — SCHOOL — Bd. Educ., Anne Arundel Co., Green St., Annapolis, 2 story, brick, Harundale School, from James J. Wehle, 111 Academy Rd., Annapolis, **$148,300**. Van Renssalaer P. Saxe, 100 W. Monument St., structural engr. James Posey, 10 E. Pleasant St., mechanical engr. CD 10/17.

●**Md., Upper Marlboro** — SCHOOL — Prince Georges Co. Bd. Educ., Upper Marlboro, Dec. 13, 2 story, brick, concrete block, steel high school, Hyattsville, from George Hyman Constr. Co., 1010 Vermont Ave., N.W., Wash. D. C., **$1,491,000** base bid, **$1,297,000** alternate A. CD 11/25.

Mich., Detroit—ENGINEERING—Bd. Educ., 1354 Broadway, Dec. 8, 3rd unit engineering bldg., 3 story, basic 80x179 ft. and 2 story, 69x97 ft. rein.-con., masonry bldg., Wayne University, from Rozycki Bros., 2268 E. Forest St. **$684,000**. CD 11/23.

Mich., Plymouth—SCHOOL—Bd. Educ., 550 Holbrook St., Dec. 6, 1 story, 23x177 ft., irregular-shape bldg., rein.-con., structural steel school, from J. M. Worswick Co., 18224 Wormer St., Detroit, **$328,278**. CD 11/22.

Minn., Rochester—MEDICAL—State Dpt. Admin., P. T. Peterson, dir., purchases, 19 State Capitol, St. Paul, Dec. 7, general contract medical and surgical bldg. at State Hospital, incl. tunnel, from C. C. Pagenhart, Rochester, **$915,500**. CD 11/16.

✦**Montana**—GENERATORS—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Dec. 1, three 16,-667-kva vertical-shaft alternating-current generators for Canyon Ferry Power Plant, Missouri River Basin Proj., Canyon Ferry Unit, Spec. 2811, from General Electric Co., 650 17 St., Denver, Colo. **$895,189**. CD 10/12.

N. C., Raleigh—MECHANICAL ENGINEERING—North Carolina State College, Raleigh, Dec. 7, 4 story, 750,000 cu. ft. mechanical-engineering bldg., from T. A. Loving & Co., Bank of Wayne Bldg., Goldsboro. **$434,434**. CD 11/2.

Okla., Woodward—HOSPITAL—City, Nov 29, memorial hospital, from L. E. Smith Constr. Co., 2161 Forrest Blvd., Tulsa. **$417,-500**. Joseph R. Koberling, Court Arcade Bldg., Tulsa, archt.

Pa., Clarks Summit — INFIRMARY — Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, Dec. 7, general contract renovating infirmary bldg. group at Clarks Summit State Hospital, from Nanticoke Constr. Co., 120 Arch St., Nanticoke. **$339,000**. CD 11/25.

●✦**Pa., Phila.**—HOSPITAL—Veterans Admin., Vermont Ave. between H and I Sts. N. W. Wash. 25. D. C., Dec. 12, general contract hospital, Spec. 4925, from John McShain, Inc.,

17 and Spring Garden Sts., **$6,597,200*****elevators**, from Otis Elevator Co., 810 18 St. N. W., Wash., D. C., **$284,466*****refrigeration, from York Corp., 1616 Walnut St., **$64,946.** CD 12/8.

Tenn., Clarksville—DORMITORY—State of Tennessee, Nashville, Dec. 6, mens dormitory at Austin Peay State College, from J. M. O'Brien, 166 Monroe St., Memphis, **$314,110.** CD 11/18.

Tex., Galveston—LAUNDRY, etc.—Medical Branch, University of Texas, Austin, Dec. 6, laundry and boiler plant, from O'Rourke Constr. Co., Box 7557, Houston, **$77,440,** mechanical and erection of same for laundry and boiler plant from The Farwell Co., Buckner Blvd., Dallas, **$300,912,** Freese, Nichols & Turner, 2111 Natl. Standard Bldg., Houston, engrs.

†Puerto Rico, Fort Buchanan—QUARTERS—U. S. Eng., Box 5043, Ancon, Canal Zone, cancelled bids to have been opened Dec. 15, 31-man Bachelor Officers Quarters, Serial No. Eng.-96-505-50-16. CD 11/23.

Que., Lachute—SCHOOL—Lachute Catholic School Comn., R. Urbani, secy., Dec 5, 2 story, bsmnt., 48x245 ft. 24-classroom school and gymnasium, rein.-con. fdns. and walls, St. Mary St., from A. Janin & Co., Ltd., 1460 Sherbrooke St. W., Montreal, Approx. **$400,-000.** CD 11/15.

CONTRACTS AWARDED

●**Ill., Blue Island**—SCHOOLS—School Dist. 218, 1291 S. Maple St., steel, concrete, brick, stone schools, to Jos. J. Duffy Co., 4994 N. Elston St., Chicago, Zone 30, **$1,500,000.** Charles Wheeler Nichol, 23 Jackson Pl., Chicago, Zone 4, archt. CD 11/27/48.

●**Ill., Chicago**—HOUSING—Chicago Housing Auth., 343 S. Dearborn St., Zone 4, 121 unit housing, Racine Ave., 108 to 110 Sts., to Jacobsen Bros., 20 N. Wacker St., Zone 6, **$1,429,000.** Bids 10/11, awarded 12/6. CD 10/8, under LB.

●**Ill., Chicago** — HOSPITAL—University of Illinois, Urbana, general contract 4 story, 150 x 187 ft., steel granite cut stone education and research hospital, concrete slab floors, in West Side Medical Center, to Patrick Warren Constr. Co., 815 N. Kedzie St., Zone 22, **$2,989,850.** Bids 9/28, awarded 1/21. CD 11/2, under LB.

Ill., Decatur—SCHOOLS—Bd. Educ., Decatur, general contract 3 schools, to Evans Constr. Co., 1324 S. MacArthur St., Springfield, **$853,000.** Bids 11/29, awarded 12/5. CD 11/14.

Ill., DeKalb—LIBRARY—State of Illinois, Armory Bldg., Springfield, library for Northern Illinois State Teachers College, to Federal Contractors, Inc., 173 W. Madison St., Chicago, Zone 2, **$974,000.** Bids 11/8, awarded 12/9. CD 11/18, under LB.

●**Mass., Fall River**—HOUSING—City of Fall River Housing Auth., Sunset Hill, 131 family unit, Pleasant View Housing to E. Turgeon Constr. Co., Inc., 614 Turks Head Bldg., Providence, R. I., **$1,197,000.** Bids 11/30. CD 12/8.

Mich., Garden City—HIGH SCHOOL, etc.—Bd. Educ., high school and gymnasium, to Douglas Cloud Co., 1017 Penobscott Bldg., Detroit, **$489,334.** Bids 11/3, awarded 11/10. CD 10/5.

●**N. M., Los Alamos**—PLANT—U. S. Atomic Energy Comn., Contract Div., Los Alamos, electric and steam plant, to Thomas Bryan & Assoc., M & M Bldg., Houston, Tex., **$1,664,-236.** Bids 11/22. CD 11/30, under LB.

●**Pa., Pittsburgh**—HOSPITAL—U. S. Eng., 825 New Federal Bldg., Zone 19, general contract buildings, passageways and utilities on site of Veterans Admin. Neuropsychiatric Hospital, CIVENG-56-638-50-18, for Veterans Admin., Vermont Ave., between H and I Sts. N. W., Wash. 25, D. C., to Johnson, Drake & Piper, 86 Trinity Pl., New York 6, N. Y., B. Perini & Sons, P. O. Box 8157, Squirrel Hill Station, Pittsburgh, James McHugh & Sons, 6449 S. South Park Ave., Chicago 37, Ill., Peter Kiewit, 1024 Omaha Natl. Bank Bldg., Omaha 2, Neb. and Charles H. Tompkins, 907 16 St. N. W., Wash. 6, D. C. **$15,-423,000.** Bids 11/22. CD 11/25, under LB.

Tex., Houston — HIGH SCHOOL — Houston Independent School Dist., 1600 Washington St., Charles Deady High School, to Linbeck Constr. Co., P. O. Box 13007, **$651,790.** Bids 11/23, awarded 12/5. CD 12/2, under LB.

Tex., San Antonio—CLASSROOM and ADMINISTRATION—San Antonio Junior College, S. Alamo St., classroom and administration bldg., for Junior College, to Joe W. Jeter's Constr. Co., 219 Avenue A, **$461,085.** Bids 11/15, awarded 11/30. CD 11/22, under LB.

Va., Petersburg—HIGH SCHOOL—Bd. Educ., Petersburg, Dec. 7, Peabody Negro High School to R. N. Wattinger Constr. Co., Exchange Bldg., Richmond, **$725,000.** CD 11/30.

Wash., Tacoma—SCHOOL—School Bd., 601 S. 8 St., general contract school to replace Lowell School, to Bonnell Constr. Co., 7604 Commerce St., **$254,941.** Bids 12/7. CD 11/18.

●**Que., Rosemount (Postal Dist. Montreal)**—HIGH SCHOOL—Protestant School Bd. Comn., 3460 McTavish St., 2 story, part bsmnt., Y-shaped, 70x700 ft., rein.-con., structural steel, brick high school, Beaubien St., to J. L. E. Price & Co., Ltd., 680 Sherbrooke St. W., Montreal, Approx. **$1,400,000.** Barott, Marshall, Montgomery & Merrett, Canada Cement Bldg., Montreal, archts. E. I. Glance, 5975 Monkland Ave., Montreal, engr. CD 2/11.

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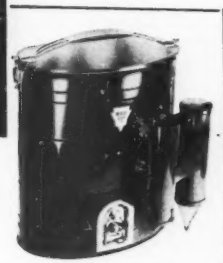

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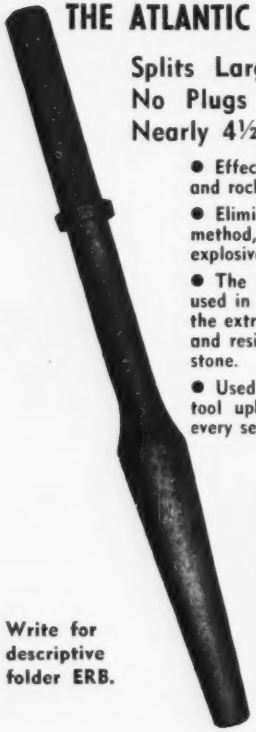

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COMMERCIAL BUILDINGS

BIDS ASKED

Ill., Sterling—Y.M.C.A.—B. A. 12/28—Sterling Rock Falls Y.M.C.A., Sterling, 3 story, steel, concrete, brick, Y.M.C.A. Building addn. $400,000. Don. Smith, 201½ First Ave., Rock Falls, archt. Robert Work 75 E. Wacker Dr., Chicago, Zone 1, assoc. archt.

Bids Asked

Conn., Middletown — HOTEL—Middletown Hotel Corp., Charles Bacon, chn. Hotel Bldg. Comm. (selected list bidders) 2 story, bsmnt., brick, steel modern hotel, Washington St. $300,000. Guy F. Lamb, 252 Main St., Middletown, and Hart-Jorman Associates, 247 Park Ave., New York, N. Y., archts. CD 6/3.

Ky., Louisville—CHURCH—B.A.—St. Francis of Assisi Church, Bardstown Rd. and Rutherford Ave., 85x170 ft., stone church. $250,000. Walter Wagner & Joseph Potts, Fincastle Bldg., archts. CD 12/8.

Mich. Detroit—STORE—J. C. Penney Co., Inc., 14151 Woodward St., 2 story, 138x268 ft. structural steel, masonry, concrete, clothing store addn. $600,000. Plans deposit $50. Theo. Rogvoy, 929 Fox Bldg., archt.

N. Y., Bellaire—CHURCH—Herbert Matz, archt., 21 E. 38 St., New York, church for Lutheran Church of Good Shepherd, Bellaire. $250,000.

●O., Euclid—APARTMENT—Bids Asked—Greenwood Acres, c/o J. L. Berger, 5915 Bonna Ave., Cleveland, 139 suite, 2 story, bsmnt., brick, block, steel apartment. $1,130,000. Harry A. Sharpe, 12336 Forest Grove, Cleveland, archt. CD 12/1.

Va., Camp Lee—HOUSING—Bids Asked—Dpt. of Army, Wash., D. C., construct, finance and manage 300 rental units.

SOON LETS CONTRACT

Ala., Mobile—SHOPPING CENTER—Owner, c/o Richard A. Vander Sys., archt., 61 N. Royal St., soon lets contract shopping center. CD 12/7.

Calif., Sacramento—HOTEL—Hull Hotels c/o El Rancho Hotel, Davis Hy., soon lets contract 60 room, frame, masonry El Rancho Hotel addn. Approx. $250,000. Frank W. Green, 1835 Arvin Dr., Glendale, archt. CD 12/6.

Calif., San Francisco—HOTEL—Allied Properties, 745 Market St., soon lets contract altering Cliff Hotel, $275,000. Gardner A. Dailey, 442 Post St., archt.

Fla., Miami—OFFICE—Five-Fifty, Inc., c/o Robert Law Weed, archt., Du Pont Bldg., soon lets contract 6 story office. CD 11/30.

●Ind., Indianapolis—STORE—Equitable Life Insurance Co., 393 7 Ave., New York City, N. Y., soon lets contract superstructure 3 story, bsmnt., irregular shaped, 54,370 sq. ft., masonry, rein.-con., structural steel department store, Monument Circle, $3,000,000. Plans deposit $50. Skidmore, Owings & Merrill, 160 N. Monroe St., Chicago, Ill., archts. R. F. Daggett, Fall Creek Blvd. North Drive, assoc. archts. CD 2/18.

Ind., Indianapolis—CHURCH—Meridian M. E. Church, 51 St. and Central Ave., soon lets contract church, $500,000. Russ & Harrison, 1001 Architects & Builders Bldg., archts. CD 8/27/45.

Md., Annapolis — HOUSING — Pub. Wks. Officer, U. S. Naval Academy, Annapolis, soon lets contract construct, finance and manage 390 dwellings units, (a) 140 units adjacent to Perry Circle Apartment area lying north of State Road, Route 2 between King George St. and Severn River (b) 250 units in and adjacent to the Quonset hut area known as New Village Married Enlisted Mens Quarters, east of Kinkaid Rd. in North Severn Area.

Pa., Harrisburg—STORE—G. C. Murphy Co., 533 5 Ave., McKeesport, soon lets contract Store No. 165 addn., alterations. $500,000. R. V. Karkless, c/o owner, archt.

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Va., South Norfolk (Br. Norfolk) — EXCHANGE—Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga., soon lets contract telephone exchange. Merrill C. Lee, Exchange Bldg., Richmond, archt.

LOW BIDDERS

Ala., Shawmut—RESEARCH CENTER—West Point Mfg. Co., Shawmut Dec. 8, research center, from Thomas & Co., LaGrange, Ga. Approx. **$250,000.** CD 11/28.

●**D. C., Wash.**—OFFICE—Virginia Hotel Co., 1107 I St. N. W., Dec. 8, 13 story office, 14 H Sts. and New York Ave. N. W., from Joseph F. Nebel Co., 2142 P St. N. W., **$1,900,000.** A. R. Clas, Shoreham Bldg., archt.

Fla., Tampa — HOSPITAL — St. Joseph's Hospital, Inc., c/o low bidder, Dec. 7, hospital addn., from Mills & Jones, Inc., 2260 4 Ave. S., St. Petersburg. Approx. **$300,000.** CD 8/25.

La., New Orleans — INTERNES — Charity Hospital of Louisiana, 1532 Tulane Ave., Oct. 20, 5 story, masonry, concrete, structural, limestone male interne's bldg., from Geo. J. Glover Co., Inc., Whitney Bank Bldg., **$428,600.** CD 10/5.

Tex., Dallas—DORMITORY—Methodist Hospital, 301 W. Colorado St., Nov. 18, 3 story, penthouse, bsmnt, masonry, steel frame nurses dormitory, concrete pier and beam fdn., from Dolph Constr. Co., 3901 Elm St., and Inwood Constr. Co., 5151 N. W. Hy., **$418,000.** Est. $375,000-$650,000. CD 11/10.

Tex., Dallas—SCHOOL—Ursuline Academy, 1330 St. Joseph St., cancelled bids to have been opened Dec. 1, school, **$350,000.** CD 11/18.

Tex., Wichita Falls—STUDENT UNION—Hardin College, Wichita Falls, Dec. 6, student union, incl. 2 wings, from T. C. Bateson Constr. Co., Irwin-Keasler Bldg., **$374,789.** Est. $250,000. CD 11/23.

Wis., Milwaukee — BUSINESS ADMINISTRATION—Marquette University, 615 N. 11 St., Zone 3, Dec. 6, general contract 5 story, 65x138 ft., concrete, brick, bedford stone school for College of Business Administration, from Gebhard-Berglin-mmer, Inc., 5420 W. State St., Zone 8, **$427,000.** CD 11/23.

CONTRACTS AWARDED

●**Ala., Birmingham**—OFFICE—Phoenix Building Corp., c/o contractor, office, to Foster & Creighton Co., American National Bank Bldg., Nashville, Tenn., Approx. **$1,100,000.**

Ala. Birmingham—APARTMENT UNITS—Warrior Terrace Inc. c/o contractor, 71 apartment units, to F.R. Daugette, 3700 10 Ave. N. Approx. **$250,000.**

Ariz., Phoenix—APARTMENT—Parker & Leonard, 4015 W. Jefferson Blvd., Los Angeles, Calif., 100,000 sq. ft. frame, stucco apartment, Park Manor Terrace, to W. E. Robertson Co., 4015 W. Jefferson Blvd., Los Angeles, Calif., Approx. **$850,000.** Max Maltzman, 4015 W. Jefferson St., Los Angeles, Calif., archt.

Calif., Daly City—RESIDENCES—Henry Doeiger, 320 Judah St., San Francisco, 36 residences, Westlake No. 2, **$348,835.**

●**Calif., Hayward** — RESIDENCES — Ganitas Constr. Co., 3685 Mt. Diablo Blvd., Lafayette, 300 residences. Owner build, **$1,200,000.**

Calif., Los Angeles—DORMITORY—Jewish Home for the Aged 325 Boyle Ave., 5 story, 54x1ttorg reln.-con. dormitory, to Remelle Constr. Corp., 1001 N. Vermont Ave., **$425,000.** Bids 10/17, awarded 12/9. CD 9/30.

Calif., Oakland — RESIDENCES —Hergan Inc., 3625 Mac Arthur Blvd., Oakland, 50 residences, Lots 324-373, Owner builds, **$350,000.**

Calif., Redondo Beach—DWELLINGS—Redondo Homes, Inc., 2021 Wellington Rd., Los Angeles, 155 and more dwellings, **$250,000.** 11336, to Erie Flodine, 2021 Wellington Rd., Los Angeles, **$915,000.** Seaboard Eng., 8844 W Olympic St., Los Angeles, engr.

Conn., Canaan—EXCHANGE—Southern N. E. Telephone Co., 22 Church St., New Haven, 2 story, 40x70 ft., brick, steel, concrete, stone, telephone exchange, to Wadham & May Co., 15 Lewis St., Hartford. Approx. **$250,000.** Bids 11/30. CD 11/22.

Conn., New Haven—CHURCH—Church of the Redeemer, 575 Whitney Ave., 1 story, bsmnt., 60x130 ft., brick, marble, limestone church, Whitney Ave. and Cold Spring Rd., to W. J. Megin, Inc., 51 Elm St., Naugatuck, Approx. **$250,000.** Bids 11/25. CD 11/9.

Conn., Windsor Locks—HOUSING—Frank Pollard, Windsor Locks, 1 story, 25x27 ft., single frame houses, Owner builds, **$250,000.** Morse Guilford, 16 Elm St., East Hartford, archt. CD 12/6.

●**D. C., Wash.** — APARTMENT — Wiltshire Crescent, Inc., 3313 14 St. N. W., 8 story, 301 unit brick, cinder block, concrete apartment, 3801 Connecticut Ave. N. W., to Lenkin Constr. Co., 3313 14 St. N. W., **$1,700,000.** Awarded 12/9. George T. Santmyers, 2209 L St. N. W., archt.

●**D. C., Wash.** — APARTMENT — Wiltshire Parkway, Inc., 3313 14 St. N. W., 8 story, brick, cinder block, concrete apartment, 3701 Connecticut Ave. N. W. to Lenkin Constr. Co., 3313 14 St. N. W., **$1,300,000.** Awarded 12/9, George T. Santmyers, 2209 L St. N. W., archt.

Fla., Hallandale—HOMES—Garco Corp. of Florida, c/o Charles Melor, archt., 320 Coral Way, Coral Gables, 50 homes. Owner builds. Approx. **$300,000.**

Fla., Panama City — HOMES — Norwood Homes, Inc., c/o contractor, 140 homes to Randolph Constr. Co., 207 S. 18 St., Birmingham, Ala. Approx. **$750,000.**

Fla., St. Petersburg—HOMES—Tyrone Gardens, Inc., c/o contractor, 109 homes, to Luddington & Austin, 3312 Bay-To Bay Blvd., Tampa, Zone 9. Approx. **$750,000.**

Ga., Atlanta—HOMES—Fairhaven Homes, c/o contractor, 159 homes, to Griffin Constr. Co., 26 Third St. N. W. Approx. **$500,000.**

Ga., Atlanta—APARTMENT UNITS—Hilltop Apartments, Inc., c/o contractor, 100 apartment units, to Sharpe & Bickerstaff, 690 Kennesaw Ave. N. E. Approx. **$450,000.**

Ill., Chicago — APARTMENT — Alan Scott Apartments, Inc., 2969 Vernon St., Zone 16, 47 unit apartment, 6820-28 S. Ogleaby St., to West Central Constr. Co., 6706 S. Merrill St., Zone 49, **$350,000.** Awarded 12/3. A. J. Del Bianco, 4938 Irving Park Blvd., Zone 41, archt.

Ill., Chicago—OFFICE—Owner, c/o Trarelletti & Juter, archts., 39 La Salle St., Zone 3, 9 story office remodeling, to Midland Constructors, 222 W. Adams St., Zone 3, Bids 9/28, awarded 12/6. CD 9/19.

Ill., Chicago—HOSPITAL—Provident Hospital Training School, 426 E. 51 St., Zone 37, hospital addns., to M. J. McDermott Co., 30 N. La Salle St., Zone 2, **$500,000.** CD 11/14, under LB.

Ind., Hammond — APARTMENT — Kenwood Apartments, 524 Douglas St., brick, stone 26 unit row apartments, separate contracts, **$450,000,** Turner & Turner, 5246 Hohman St., archts.

Kan., Topeka—HOSPITAL—Santa Fe Hospital, 6 and Jefferson Sts., general contract hospital, to M. W. Watson, National Bank of Topeka Bldg., **$713,000,** Bids 10/22. CD 11/16.

La., Gretna—HOUSES—L. P. Smith Developing Co., Cartier and Manuel, New Orleans, 100 houses, Owner builds, Approx. **$500,000.**

La., New Orleans — HOUSES — Chalmette Vista Development Co., c/o contractor, 110 houses, to Chalmette Contg. Co., Chalmette, Approx. **$250,000.**

●**Md., Baltimore**—APARTMENT—Mary Lander Apartments, c/o Andrew Graham, 711 S. Central Ave., 10 story, 52x93x388 ft., steel, masonry apartment, 3501 St. Paul St., to Baltimore Contractors, Inc., 711 S. Central Ave., **$4,000,000.** Hal A. Miller, 2118 Maryland Ave., archt.

Nev., Las Vegas—DWELLINGS—Curlett Constr. Co., 820 W. Esther St., Long Beach, Calif., 36 concrete block dwellings, at Westside Development. Owner builds. Approx. **$300,000.** Paul R. Williams, 3757 Wilshire Blvd., Los Angeles, Calif., archt.

N. Y., Flushing—HOUSES—Leeds American Ranch Homes Corp., c/o A. H. Salkowitz, archt., 37-60, 82 St., Jackson Heights, 29 one family houses, 69 Ave., Marianna St., 67 Ave., 180 St., 65 Ave., Utopia Parkway. Owner builds. **$250,000.**

N. Y., Forest Hills—APARTMENT—Winpark Realty Corp., c/o Lilien, archt., 201 W. 72 St., New York, Zone 23, apartment, 68 Ave. near Queens Blvd., separate contracts. **$590,000.** CD 4/27.

N. C., Greensboro—APARTMENT—College Park Apartments, Inc., c/o K. P. Mallox, Greensboro, 96 apartment units. Owner builds. **$691,000.**

O., Avon Lake—HOMES—Avon Building Co., 13029 Lorain Ave., Cleveland, 60 one story bsmnt. homes, Beck Rd., separate contracts. **$720,000.**

●**O., Cleveland**—HOMES—Broadway Lumber Co., 8022 Broadway, one hundred, 1½ story, bsmnt., 30x30 ft. homes, separate contracts. **$1,000,000.**

●**O., Cleveland**—HOMES—Marvin Helf, 2100 Green Rd., two hundred, 1½ story, bsmnt., frame homes, Puritas Spring Rd. between W. 155 and W. 191 Sts., separate contracts. **$2,000,000.**

Pa., Springfield — RESIDENCES — Nethenwood Corp., 7060 Garrett Rd., Upper Darby, residential development, Heatsheaf Rd., etc., separate contracts. **$670,000.**

●**S. C., Charleston**—APARTMENT—Darlington, Inc., 1223 King St., 12 story, steel, masonry apartment, to Long Constr. Co., 1223 King St., **$1,650,000.** Awarded 12/7. Wm. G. Lyles, Bissett, Carlisle & Wolfe, 1302 Main St., Columbia, archts.

Tex., Abilene — RESIDENCES — Dream Homes, Inc., c/o R. Thomason, Sr., Abilene, 100 residences, own forces. Approx. **$700,000.** CD 12/2.

●**Tex., Corpus Christi**—DUPLEXES, etc.—Orville W. Eastland, Jones Bldg., 100 duplexes, 200 single story one family units, 1 mi. south of new high school, Staples St., to Lee Aiken, Airport Rd. Approx. **$1,300,000;** 158-unit housing 13 acre tract on Arlington Dr. near Ayres, formerly Belmont Park add. Baptist Church, to Burnett-Clark Const. Co., 1916 Van Loan St., **$1,340,000.** Awarded 12/8. E. Dutter Hamon, Med. Prof. Bldg., archt. Frank T. Drought, 117 W. Pecan St., San Antonio, engr. CD 8/31, under LB.

●**Tex., El Paso** — HOSPITAL — Providence Memorial Hospital, El Paso, 272 bed general hospital, to Robert E. McKee, P. O. Drawer 562, **$2,227,300.** Bids 11/1, awarded 12/5. CD 11/10, under LB.

Tex., Fort Worth — DWELLINGS — Clearview Park, Inc., 2600 S. Hampton St., design and construction 93 frame dwellings, Clearview Addn., to Don Elliott Constr. Co., Box 4403, Station A, **$417,000.**

●**Tex., Houston**—DWELLINGS—L. E. Helms Lumber Co., 5214 Airline St., 150 dwellings, vicinity proposed McCarthy Airport. Owner builds. **$1,100,000.** CD 12/1.

●**Tex., Houston**—APARTMENT—Max Krauss, 933 Minerva St., Pasadena, 450 (Negro) apartment units, own forces. Approx. **$2,700,000.** CD 12/2.

●**Tex., Houston**—DWELLINGS—MacGregor Park Homes, Inc., c/o J. E. Leicher, 2402 Arbor St., Sect. 2, 159 dwellings MacGregor Pl. sub-division, own forces. Approx. **$1,100,000.** CD 12/1.

Tex., Houston — DWELLINGS — H. H. Merrill, 403 Cornado St., 75 dwellings, north of Bellair Circle, own forces. Approx. **$575,000.** CD 12/2.

Tex., Houston—DWELLINGS—Olson Bros. Constr. Co., 2441 Times St., 80 addnl. dwellings, own forces. Approx. **$560,000.** CD 12/2.

●**Tex., Houston**—TOLL—Southwestern Bell Telephone Co., 1010 Pine St., St. Louis, Mo., 7 story, 125x142 ft., brick, hollow tile, concrete block, cut stone, granite, steel toll bldg., concrete beam and pier fdn., to W. S. Bellows Constr. Corp., 716 N. Everton St., **$3,000,000.** Bids 11/10. CD 11/10.

Tex., Houston—DWELLINGS—Strickland-Whipple Constr. Co., 2nd. Natl. Bank Bldg., Unit 1, 100 dwellings, Woodlawn Acres Annex No. 3. Owner builds. Approx. **$550,000.** CD 11/25.

●**Tex., Snyder**—DUPLEXES—Snyder Homes, Inc., Snyder, 50 duplexes to Rose Constr. Co., Box 814, Abilene, Approx. **$1,450,000.** CD 12/1.

Tex., Sweetwater — DWELLINGS — L. L. McCandless, W. 8 St., Austin, 30 dwellings. Owner builds. **$275,000.** CD 12/1.

Tex., Sweetwater — HOUSING — White & Gunn, Stephenville, housing. Owner builds. **$250,000.** CD 12/1.

Wis., Eau Claire—SCHOOL, etc.—Immaculate Conception Congregation, Eau Claire, 2 story, 63x138 ft., school and 2 story, part bsmnt. 38x79 ft. rectory, concrete, brick, stone, to Hoffman Constr. Co., 1519 N. Oneida St., Appleton, Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., Green Bay, archts.

Ont., Toronto—STORES—Loblaw Groceterias Co., Ltd., Fleet & Bathurst Sts., two 1 story, bsmnt., steel, brick stores, rein.-con. fdns., Bathurst St. and Glencairn Ave. and Coxwell Ave., and O'Connor Dr., to Foundation Co. of Ontario, Ltd., 1220 Bay St., Approx. **$250,000;** two 1 story, bsmnt., structural steel, concrete, block, brick stores, concrete fdns., at Kingston Rd. at Main St., Kingston Rd. and Warden Ave., to Bennett-Pratt Ltd., 5 Maple Leaf Dr., Weston, Approx. **$250,000.** CD 11/25.

Que., Montreal—CHURCH—Roman Catholic Parish of St. Albert le Grand, 7 Lafleches Ave., church, to Lareau & Dupuis 2314 E. Sherbrooke St. Approx. **$275,000.** R. Dumais, 3995 E. Sherbrooke St., archt.

Que., Quebec City—STORE—J. B. Laliberte, Ltd., 145 St. Joseph St., 2 story, rein.-con., brick, block store exten., to Francois Jobin, Inc., 88 Chemin St. Louis St., Sillery, Approx. G. Amyot, 105 Cote de La Montagne, archt. CD 1/26/45.

INDUSTRIAL BUILDINGS

BIDS ASKED

Ill., Chicago—FACTORY—B.A. 12/23—General Laminated Co., 2357 S. Halsted St., Zone 16, 16,000 sq. ft., steel, concrete, brick factory, $100,000. A. Epstein & Sons, 2011 W. Pershing St., Zone 9, archts.

Ont., Toronto—SERVICE, etc.—B.A. 12/28—M. Brown & Elton, archts., Confederation Life Bldg., Toronto, 2 story with 1 story service station at rear, 72x125 ft. concrete, brick, structural steel frame service building and office, Gerrard St. E. east of Blantyne Ave., for Gilson Automobile Transport Ltd., 3328 Kingston Rd., Approx. $150,000.

Ill., Chicago — FACTORY — Bids Asked—E. W. Carlson Screen Co., 3747 N. Clark St., Zone 13, 1 story, 114x125 ft., brick, wood truss factory, 4507 N. Ravenswood St. $70,000. Melvin A. Nelson, 4611 Hermitage St., Zone 13, archt.

SOON LETS CONTRACT

Calif., Emeryville—WAREHOUSE—General Electric Supply Corp., 9 and Jackson Sts., Oakland, soon lets contract, 1 story, 54x280 ft., steel, concrete warehouse. Approx. $68,000. Will G. Coriett & Arthur W. Anderson, Bank of America Bldg., Oakland, archts.

Calif., Los Angeles—GARAGE—Janss Investment Co., 1051 Westwood Blvd., soon lets contract 3 story, 216x313 ft., rein.-con. garage, at 10860 Le Conte Ave. $700,000. Wurdeman & Becket, 5657 Wilshire Blvd., archts. Murray Erick, 5657 Wilshire Blvd., engr.

Calif., Oxnard—MAINTENANCE YARD, etc.—Southern California Edison Co., Edison Bldg., Los Angeles, soon lets contract, 4 bldgs., maintenance yard and district office, $150,000.

Calif., San Francisco — INDUSTRIAL — Dalziel Plumbing Supplies, 1145 Bryant St., soon lets contract 2 story, mezzanine, 58x164 ft., concrete, reinforced steel industrial bldg. Approx. $68,000. Ellison & King, 1045 Sansome St., engrs.

Ga., Americus — PLANT — Manhattan Shirt Co., 207 River St., Paterson, N. J., plant. CD 11/30.

Minn., Elk River—PLANT FITTINGS—Rural Co-operative Power Assn., Maple Lake, soon lets contract piping, valves, fittings, miscellaneous related equipment in generating plant, near here, also unloading, erecting all owner-

furnished equipment except boiler, turbine and coal and ash handling equip. $500,000. R. D. Thomas & Assoc., 400 Metropolitan Life Bldg., Minneapolis, engrs. CD 11/29.

Wis., Milwaukee — FACTORY — Milwaukee Shoe Co., 215 W. Maple St., Zone 4, soon lets contract 3 addnl. stories 36x50 ft. shoe factory addn., 1 story 27x47 ft. garage addn., concrete, steel, brick, F. F. Drolshagen, 647 W. Virginia St., Zone 4, archt. CD 9/29.

LOW BIDDERS

Ga., Atlanta—SALES and SERVICE—John Smith Chevrolet Co., 526 W. Peachtree N.W., rejected bids Sept. 7, auto sales and service bldg. addn. CD 8/26.

La., New Orleans—WAREHOUSE—Walgreen Drugs Store Co., 744 E. Bowen Ave., Chicago, Ill., Dec. 6, 1 story, 140x155 ft. brick, steel, precast concrete, warehouse, Bienville and Scott Sts., from R. P. Farnsworth & Co., 1515 S. Salcedo St., **$185,483.** CD 11/22.

Neb., Franklin—SERVICE and SHOP—Franklin County Electric Membership Assn., Franklin, rejected bids Nov. 3, shop and service bldg. CD 10/28.

●**Tenn., Memphis** — WAREHOUSE, etc. — International Harvester Co., c/o Walk C. Jones-Walk C. Jones, Jr., archts., 1215 Poplar St., warehouse and office, from S. & W. Constr. Co., 983 Shrine Bldg. Est. **$1,000,000.** CD 11/22.

CONTRACTS AWARDED

Conn., Derby—FACTORY—W. E. Bassett & Co., Roosevelt Dr., 1 story, 125x200 ft., brick, steel factory, Roosevelt Dr., to P. Francini & Son, 99 Hawkins Ave., Approx. **$120,000.**

Fla., Tarpon Springs—FACTORY—Tarpon Supply Co., Tarpon Springs, factory. Owner builds. **$100,000.**

Ga., Augusta—WAREHOUSE, etc.—Reynolds Market Corp., c/o contractor, warehouse and office, to J. C. Stockton & Son, Augusta. Approx. **$125,000.** CD 11/30, under LB.

Ill., Chicago—FACTORY, etc.—Consolidated Royal Chemical Co., 540 S. Wells St., Zone 5, 1 story, 88,000 sq. ft., steel, concrete, brick factory and office, 637 W. Chicago St., Zone 10, to Jacob Cohen, 52 N. Waller St., Zone 44, **$500,000.** Awarded 12/6. Edward Steinborn, 176 W. Adams St., Zone 3, archt.

Ill., Chicago—PLANT—Radio Industries, Inc., 2435 W. Irving Park, Zone 18, 2 story, 45x60 ft., steel, brick, concrete plant addn., to Wm. Davidson Constr. Co., 535 N. Newcastle St., Zone 21, **$80,000.** Awarded 12/2. Tuchschmidt & Assoc., 179 W. Washington St., Zone 2, archts.

Ill., Evanston—FACTORY—Roseman Tractor Mower Co., Central and Ridge Sts., 1 story, 50x150 ft., brick, concrete wood truss factory, to Zander Constr. Co., 1710 McLean St., Glenview, **$70,000.** Awarded 12/5. Monroe Bowman & Assocs., 221 N. La Salle St., Chicago, Zone 1, archts.

Ill., Skokie—FACTORY—Burrell Belting Co., 413 S. Hermitage St., Chicago, Zone 12, 125x200 ft., steel, concrete, brick factory, 7501 St. Louis Ave., to Continental Constr. Co., 340 N. Central Ave., Chicago, Zone 44, **$200,000.** Awarded 12/5.

La., New Orleans—SALES and SERVICE—Stephens Buick Co., 830 Carondelet St., 2 story, 165x206 ft., rein.-con. brick, hollow tile auto sales and service bldg., to Gervais F. Favrot Bldr. Bldg., **$399,929.** Bids 11/30, awarded 12/6. CD 11/10.

Md., Baltimore—TRANSFER STATION—Delivery of Baltimore, Inc., 205 W. Centre St., 1 story, 263x277 ft., brick, cinder block transfer station, 23 Morrow Bros., Inc., 2315 N. Charles St., Zone 18, **$520,352.** Bids 11/14. CD 10/28.

Mich., Detroit—WAREHOUSE—Argonaut Realty Co., General Motors Bldg. No. 308, 1 story, 242x472 ft. structural steel, masonry, concrete, General Motors warehouse, to Cunningham Limp Co., 3087 W. Grand Blvd. **$600,000.** Shreve, Walker & Assoc., 600 Woodward Ave., archts. CD 1/27.

Minn., St. Paul—BREWERY—J. Schmidt Brewing Co., 882 W. 7 St., general contract, 2 story, 33x173 ft., steel, concrete, reinforcing steel, brewery, and cellar bottling house addn., to W. W. Magee, 1397 Laurel Ave., **$230,000.** Harley, Ellington & Day, 153 E. Elizabeth St., Detroit, Mich., archts. CD 8/30/48.

N. C., Waynesville—PLANT—Owner, c/o contractor, fertilizer plant, to David Underwood, Waynesville. Approx. **$100,000.**

Ore., Myrtle Point — PLANT — Superior Cheese Co., Myrtle Point, remodeling, modernizing plant and construct addn., to A. T. Fox, 421 Dupont St., North Bend. **$250,000.** Awarded 12/8. Annand, Kennedy & Boone, Central Bldg., Portland, archts.

Pa., Pittsburgh—BAKERY—Hankey Baking Co., McKees Rocks, 1 story, bsmnt., tile bakery, to E. H. Dubson, Pine Creek Rd., Perrysville, approx. **$500,000.** CD 11/16/45.

●**Pa., West Point**—RESEARCH LABORATORY—Sharpe & Dohme, 640 N. Broad St., Phila., 3 story, 95,000 sq. ft. brick research laboratory to Henry E. Baton, Inc., 1717 Sansom St., Phila., **$4,000,000.** Bids 11/23. CD 11/23.

Tex., Austin—LUMBER YARD—Calcasieu Lumber Co., 301 W. 2 St., lumber yard reconstruction, own forces. Approx. **$75,000.** CD 8/8.

Tex., Dallas — PLANT — Trinity Portland Cement Co., Republic Bank Bldg., cement plant expans., Purchase and Hire. Approx. **$300,000.** CD 11/28.

Tex., Fort Worth—FACTORY—Swift & Co., Exchange Ave., 104x105 ft. factory addn., concrete slab and pier fdn., own forces. Approx. **$70,000.**

Tex., San Antonio—WAREHOUSE—H. E. Butt Grocery Co., Robstown Rd., masonry cold storage and produce warehouse Unit 1, own forces, **$375,000;** grading and earthwork for warehouse area, to Colglazier & Hoff, Inc., 326 Seguin Rd., **$35,000.** CD 11/14.

●**Tex., Tyler**—REFINERY—McMurrey Refining Co., Tyler, design and construction fluid catalytic cracking refinery to Universal Oil Products Co., 310 S. Michigan St., Chicago, Ill. Approx. **$1,150,000.** CD 12/2.

Tex., Uvalde—PLANT—Texas and New Orleans R.R. Co., H. J. McKenzie, ch. engr., Southern Pacific Bldg., Houston, vegetable packing plant units, own forces. Approx. **$70,000.**

Tex., Waxahachie — SHOP — Dick Hipp Buick Co., Waxahachie, auto shop, display, parts, to Inwood Constr. Co., 5151 N. W. Hy., Dallas, **$71,000.** CD 11/23, under LB.

Ont., Niagara Falls—FACTORY—Oneida Community, Ltd., 1705 Falls Ave., 13,500 sq. ft. L-shaped factory addn., River Rd., to Smith Brothers Constr. Co., Ltd., 1704 Ellen St., Approx. **$100,000.**

Ont., Toronto—WAREHOUSE, etc.—Dominion Stores, Ltd., 832 Weston Rd., 1 story, timber, metal warehouse and store, Dundas St., W. and Humbercrest St., to Foundation Co. of Canada, Ltd., 1220 Bay St., Approx. **$102,924.** Riddle & Connoor, 422 Wellington St., London, archts. CD 10/7.

Que., Farnham — PLANT, etc. — Collins & Aikman Co., Ltd., plant and office extens., to R. M. Miller Constr. Co., Ltd., 1500 Guy St., Montreal. Approx. **$300,000.** H. R. Wiggs, 1411 Crescent St., Montreal, archt.

UNCLASSIFIED

BIDS ASKED

†**Colorado**—CONTROL BOARD, etc.—B. A. 12/28—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, 1 control board, 5 overcurrent relays, 1 tripping relay, 1 circuit-breaker control switch, 2 ammeters, 3 current transformers for Greeley substation, Colorado-Big Thompson Proj., Spec. R7-95 (Region 7). L. N. McClellan, ch. engr.

N. Y., New York—TRACKS, CONTACT RAIL—B. A. 12/29—Bd. Transportation, 250 Hudson St., Zone 13, installing tracks and contact rail and incidental work, furnishing materials for connection between White Plains Road Line and the Dyre Avenue Line, north of E. 180 St. Station, Bronx Boro. CD 2/3/44.

Pa., Phila., LIGHTING SYSTEM—B. A. 12/30—P. W. Dept., City Hall Annex, high power lighting sys., Passayunk Ave. etc. and 26, 34 Sts. etc. $300,000. A. Zane Hoffman, c/o owner, ch. engr. CD 12/8.

●**Wash., Seattle**—GRANDSTAND—B. A. 1/10—University of Washington 15 Ave. N. E. and E. 40 Sts., 2-unit grandstand and cover south stands at football stadium, $1,500,000. Plans deposit $25. G. W. Stoddard & Assoc., 1213 Westlake Ave. N., archts.

LOW BIDDERS

Ala., Fairhope—GAS SYSTEM—City, Dec. 7, natural gas sys., from L. F. Wilder, 2301 N. 24 St., Birmingham, **$612,725.** CD 11/21.

Arkansas—RURAL DISTRIBUTION LINES—North Arkansas Electric Co-operative Salem, Dec. 1, 295 mi. rural distr. line and 4 substations, Fulton Co., from Blackburn & Whiteside, Mammoth Springs, **$140,437.** CD 11/17.

Calif., Los Angeles—BATH HOUSE, etc.—City, Dec. 8, bath house and swimming pool at Tujunga Playground, from A. L. Murphy, 817 Glendale Blvd., **$137,851.** CD 11/23.

Calif., San Francisco — PLAYGROUND IMPRV.—Recreation Comm. of City and San Francisco Co., 61 Grove St., San Francisco, Dec. 6, South Sunset Playground Imprvt., from Wellnitz & Denarde, 314 6 St., San Francisco, **$86,760.** CD 11/18.

Calif., San Jose—LIGHTING SYSTEM—City, City Hall, Dec. 5, installing center lighting and traffic signal sys., on The Alameda, from Chas. A. Langlais, 474 Bryant St., San Francisco, **$71,879.**

Colorado—RURAL DISTRIBUTION LINES—Mountain View Electric Assn., Limon, Nov. 30, 255 mi. rural distr. lines, Lincoln, Elbert, Washington, Douglas, and El Paso Counties, from R. E. Rayer, 1123 Aldrich Ave. S., Minneapolis, Minn., **$295,473.** Est. $450,000. CD 11/14.

Fla., Milton—GAS SYSTEM—City, Dec. 8, natural gas system, from W. D. Owens Constr. Co., First National Bank Bldg., Montgomery, Ala. **$452,405.** CD 11/21.

Fla., Tampa—SWIMMING POOL—Tampa Yacht & Country Club, c/o Russell & Axon, engrs., Daytona Beach, Dec. 1, swimming pool, from Paddock Eng. Co., 3727 Atwell St., Dallas, Tex., **$50,963.** CD 10/31.

Ga., Fitzgerald—SWIMMING POOL, etc.—City, rejected bids Dec. 5, swimming pool and bath house. CD 11/30.

Kansas—RURAL DISTRIBUTION LINES—Wheatland Electric Co-operative, Scott City, Nov. 29, 23.8 mi. 69 kv. transmission lines in Scott and Lane Counties, from Triple H Constr. Co., Linton, Ind., **$54,650.** CD 11/16.

Md., Baltimore—PUBLIC BATH, etc.—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, 1 story, brick, block, concrete, tile, public bath and comfort station, Claremont Ave. and Eaton St., from Globe Constr. Co., 2012 N. Charles St., Zone 18, **$59,100.** R. E. L. Williams, City bldg., engr. CD 10/21/43.

Md., Baltimore—SWIMMING POOLS—City, City Hall, Dec. 7, rein.-con. Riverside Park Swimming Pool, bath house and facilities; and rein.-con. Clifton Park Swimming Pool, bath house and facilities, from J. H. Williams & Co., Inc., 1122 Cathedral St., **$206,000** and **$282,000** respectively, CD 11/22.

†**Montana**—TRANSMISSION LINE—Bureau Reclamation, Great Falls, Dec. 6, 100 mi. 115 kilovolt power transmission line between Havre and Shelby in northern Montana, to carry power from Fort Peck Dam, from Smith Constr. Co., 1000-44 Ave. N, Nashville, Tenn., **$599,432.** CD 11/9.

†**Montana**—TRANSFORMERS—Bureau Reclamation, Dpt. Interior, Bldg., 1-A, Denver Federal Center, Denver, Colo., Dec. 6, three 16, 667/20, 834-kva transformers for Canyon Ferry Power Plant, Missouri River Basin Proj., Spec. 2816, from Gough Industries, Inc., 827 E. 1 St., Los Angeles, Calif., **$149,850.** CD 10/27.

N. Y., Jones Beach — ADMINISTRATION BLDG, etc.—Long Island State Park Comn., Babylon, Dec. 9, administration bldg., police headquarters, etc. at Jones Beach State Park, from Lowe Constr. Co., 210 Kellum Pl., Garden City. **$215,332.** CD 11/30.

Washington — RURAL DISTRIBUTION LINES—Klickitat Co. Public Utility Dist. 1, Goldendale, Dec. 9, 62.2 mi. single phase rural distr. lines, Sec. E-1, from R. E. Hughes, Vancouver, **$106,075;** 211 mi. rural distr. lines, Sect. E-2, from Power City Electric Co., N. 920 Howard St., Spokane, **$305,503,** above work in Klickitat and Skamania Counties. CD 11/16.

CONTRACTS AWARDED

Ill., Centralia — DRIVE-IN THEATRE — Homer Butler, Centralia, and Elbert Butler, Hillsboro, c/o Elbert Butler, P. O. Box 146, Hillsboro, drive-in theatre, separate contracts, **$125,000.** CD 7/11.

Ill., Hillsboro—DRIVE-IN THEATER—Elbert W. Butler, Hillsboro, Homer S. Butler, Jr., Centralia, c/o Elbert W. Butler, P. O. Box 146, 480 car drive-in motion picture theatre, on 14-acre tract, 1 mi. west of here at Butler Y junction between Routes 16 and 127, separate contracts. Approx. **$125,000.**

Ill., Litchfield — DRIVE-IN THEATRE — Frisina Amusement Co., Dominic Frisina, pres., Roxy Theatre Bldg., 421½ S. 5 St., Springfield, design and construction 750 car drive-in motion picture theatre, on old Route 66 just north of Ferdon St., to Harry Jones Constr. Co., Lawrenceville. Approx. **$100,000.**

●**Md., Piney Point**—TERMINAL—L. P. Steuart & Bros., Inc., 138 12 St. N. E., Wash., D. C., petroleum storage terminal, incl. open pile wharf in Potomac River, 1,100 ft. long, 37 ft. wide, to Tidewater Constr. Co., 538 Front St., Norfolk, Va., **$1,500,000.** Awarded 12/9. Wm. K. Karsunky, 2011 K St. N. W., Wash., D. C., consult. engr.

Mass., Worcester—PARKING FACILITIES—Parking Station Corp., 339 Main St., D. J. Sedar, mgr., 1 story, steel, concrete parking facilities, 2 parking levels. Commercial and Waldo Sts., to R. L. Whipple Co., 44 Portland Sts. **$55,000.** Lester W. West, 15 Ashland St., archt.

Missouri—RURAL DISTRIBUTION LINES—Black River Electric Co-operative, Ironton, 213.7 mi. rural distr. lines and 5 mi. conversion lines in Washington, Iron, Reynolds, Bollinger, Cape Girardeau, Wayne and Wayne Counties, to Guy W. Thaxton Constr. Co., Lebanon. **$288,587.** Bids 12/2. CD 11/29.

Neb., Omaha—SWIMMING POOL, etc.—City, City Hall, 18 and Farnam Sts., swimming pool and tennis courts, Miller Park, to Mainelli Constr. Co., 4502 S. 36 St., **$212,500.** Bids 11/25. CD 11/9.

Tex., Austin—SPORTS ARENA, etc.— St. Edwards University, San Antonio Rd., sports arena, athletic courts, stadium, to Gilbert Falbo & Son, 107 Morales St., San Antonio, **$100,000.** CD 12/6.

Tex., Fort Worth—ELECTRIC DISTRIBUTION LINES—Community Public Service Co., Electric Bldg., 12nd unit electric distr. lines, force account. **$250,000.** CD 12/13/48.

Tex., San Antonio—ICE RINK—Bexar Co. Courthouse, ice rink in coliseum, own forces. **$90,000.** Russell White, c/o owner, engr. CD 5/27.

Tex., San Antonio—LIGHTING SYSTEM—City Public Service Bd., 210 N. St. Marys St., Unit 6, street lighting sys. throughout city, force account. **$125,000.**

N. S., Black Point—WHARF—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf repairs, imprvs., to Barney Mosher, Bristol Ave., Liverpool. Approx. **$18,837.** Bids 12/7. CD 11/23.

●**Quebec and Maine**—OIL PIPELINE—Montreal Pipe Line Co., Ltd., 10803 Sherbrooke St., Montreal East, Que., installing 236 mi. 22 in. oil pipeline parallel the present 12 inch line from Montreal East, Que., to Portland, Me., U. S. A., to Fred Mannix & Co., Ltd., 208 Lancaster Bldg., Calgary, Alta.; connections with four Montreal refineries, to Latex Constr. Co., P. O. Box 153, Atlanta, Ga., U. S. A. Total est. Approx. **$15,000,000.** CD 12/12.

Proposal Advertisements see pp. 87 & 88

OFFICIAL PROPOSALS

OFFICIAL PROPOSALS

Bids: January 17, 1950 (480)

Downsville Dam and Appurtenant Works

CONTRACT 401

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, January 17, 1950, for Contract 401, for the completion of the construction of the Downsville dam of the Peparton reservoir and for the construction of the waste weir, weir channel and waste channel of that reservoir, the release water chamber and tunnel and the appurtenances of all of these structures, together with the closure of the existing diversion tunnel and the final grading in the vicinity of the dam, all as set forth in the specifications. The Downsville dam will be approximately 2,450 feet in length with a maximum height of about 204 feet and will be constructed of earth compacted by rolling. The work is located near the Village of Downsville, Town of Colchester, Delaware county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of four hundred thousand dollars ($400,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, HENRY HESTERBERG, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: January 3, 1950 (479)

Resurfacing Lock Walls

Sealed proposals covering Contract M-95

For Resurfacing Lock Walls, Lock 7, Erie Canal Town of Niskayuna, Schenectady County, N. Y. Approximate cost of project $129,280.00

will be received by Henry A. Cohen, Director, Bureau of Contracts and Accounts, Department of Public Works, The Governor Alfred E. Smith State Office Building, Albany, N. Y., on behalf of the Department of Public Works, until 10:30 o'clock A.M., Eastern Standard Time on Tuesday, January 3, 1950, when they will be publicly opened and read.

Each proposal must be made upon the form and submitted in the envelope provided therefor and shall be accompanied by a certified check made payable to the State of New York, Commissioner of Taxation and Finance, in the amount of $7,000.00 as a guaranty that the bidder will enter into the contract if it be awarded to him. The title of the work must be written on the front of the envelope, sealed and delivered to Henry A. Cohen, Director, Bureau of Contracts and Accounts, The Governor Alfred E. Smith State Office Building, Albany, N. Y. The blank spaces in the proposal must be filled in, and no change shall be made in the phraseology of the proposal. Proposals that carry any omissions, erasures, alterations or additions may be rejected as informal. Successful bidder will be required to give a bond conditioned for the faithful performance of the contract and a separate bond for the payment of the laborer and material men, each bond in the sum of 100% of the amount of the contract or contracts in excess of $500. Corporations submitting proposals shall be authorized to do business in the State of New York. Drawings and specifications may be examined free of charge at the following offices:

Guy W. Pinck, Deputy Chief Engineer
The Governor Alfred E. Smith State Office Building, Albany, N. Y.

State Architect, 18th Floor, 270 Broadway, New York City

Geo. L. Nickerson, Dist. Engineer, 333 Broadway, Albany, N. Y.

Drawings and specifications may be obtained from the Director, Bureau of Contracts and Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. upon deposit of $5.00 for each set.

Refund in full will be made to bidders for one set of plans and specifications returned in good condition within 30 days of award of contract or the rejection of the bids. A 50% reimbursement will be made for the return in good condition of all other sets of the plans and specifications within 30 days following the award of the contract or the rejection of the bids.

Checks for plans and specifications shall be made payable to the State of New York.

Proposal blanks and envelopes will be furnished without charge.

The right is reserved to reject any or all bids.

B. D. TALLAMY, SUPERINTENDENT
N. Y. State Department of Public Works

Bids: January 12, 1950 (478)

Construction of Route 25A

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 25A, SECTION 1E

Construction of Route 25A, Section 1E, from Route 21 to Spring Street, Ramp D, Ramp D Bridge and Viaduct, and Grant Street Connection to Broad Street, City of Newark, Essex County. Federal Project U-187(4). Length 0.188 miles.

Roadway Items

Estimated: 3,900 cu. yds. Roadway Excavation-Earth
4,000 sq. yds. Pavement Excavation
3,500 sq. yds. 10" Rein. Conc. Pavement Surface
600 sq. yds. 9" Rein. Conc. Base Course
20 tons Pavement, Type CA-BC-2

Bridge Items

2,178 cu. yds. Concrete in Structures
134,100 lbs. Rein. Steel in Structures
574,450 lbs. Structural Steel

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, New Jersey, on Thursday, January 12, 1950, at eleven o'clock (11:00 A.M.-EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by Sections 2, 3 and 4, P. L. 521, 78th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 305-309 Washington Street, Newark, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to common labor employed on this contract shall be 75¢ per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

(Continued on page 88)

Contractors Watch This Section —

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: January 4, 1949 (476)

Construction of Grading, Drainage & Paving of Turnpike Extension

PENNSYLVANIA TURNPIKE COMMISSION
Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 A.M. (Eastern Standard Time), the 4th day of January, 1950, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud, for the following contract and/or contracts:

For the construction of structures and the grading, drainage and paving of Turnpike Section 31D, part of the Western Pennsylvania Turnpike Extension in Patton, Penn and Franklin Townships, Allegheny and Westmoreland Counties, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 2,000 feet West of Beatty Road in Patton Township at Turnpike Station 1394+00, Allegheny County, thence in an Easterly direction 21,728 feet to a point approximately 930 feet East of the Allegheny-Westmoreland County Line, at Turnpike Station 24+50, Penn Township, Westmoreland County, a distance of approximately 4.12 miles.

The approximate quantities of the principal items are as follows:

Class 1 Excavation	1,114,000 cubic yards
Class 1A Excavation	102,000 cubic yards
Class 2 Excavation	26,000 cubic yards
Borrow Excavation	209,800 cubic yards
Reinforced Concrete Pavement	14,200 square yards
Class A Concrete	2,100 cubic yards
Class B Concrete	8,900 cubic yards
Steel Reinforcing Bars	924,500 pounds
Fabricated Structural Steel	2,106,500 pounds

For the construction of structures and the grading, drainage and paving of Turnpike Section 31E, part of the Western Pennsylvania Turnpike Extension in Franklin and Penn Townships, Westmoreland County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 830 feet East of the Allegheny-Westmoreland County Line, at Turnpike Station 23+50, Penn Township, Westmoreland County, thence in an Easterly direction 17,100 feet to a point approximately 3,800 feet West of Legislative Route 64232 (Traffic Route 180) at Turnpike Station 194+00, Penn Township, Westmoreland County, a distance of approximately 3.24 miles.

The approximate quantities of the principal items are as follows:

Class 1 Excavation	630,400 cubic yards
Class 2 Excavation	15,600 cubic yards
Reinforced Concrete Pavement	30,600 square yards
Class A Concrete	700 cubic yards
Class B Concrete	3,300 cubic yards
Steel Reinforcing Bars	246,500 pounds
Fabricated Structural Steel	711,100 pounds

Copies of plans, specifications, and other contract documents, including cross-sections are on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, on 20 December 1949. Copies of specifications for grading, drainage, paving, and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five ($5.00) dollars per copy. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of Fifty ($50.00) dollars per set, for each section.

Plans and contract documents exclusive of cross-sections and specifications may be obtained from the Commission upon deposit of Ten Dollars ($10.00) for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans, contract documents, and cross-sections returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications, contract documents, and cross-sections.

The Pennsylvania Turnpike Commission reserves the right to award each section as a separate contract or in a combined contract.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
8Dec49
NtoB8Dec49

OFFICIAL PROPOSAL

RATE: $1.00 per line (or fraction) per insertion.

CLOSING DATE: 12:00 p.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

OFFICIAL PROPOSALS

Bids: December 27, 1949 (468)

Sewer Construction

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 215-S

Sealed proposals for constructing the Cabin John Branch Trunk Sewer from C & O Canal to River Road, Glen Echo District, will be received at the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, until Tuesday, December 27, 1949 at 2:00 P.M., Eastern Standard Time, at which place and time they will be publicly opened and read.

The contract includes a section for which alternate bids are to be asked as follows:

Tunnel Route—
- 4750 feet of 24 inch special sewer pipe
- 250 feet of 24 inch RCCP pipe
- 4500 cu. yds. of rock
- 1500 cu. yds. of rip-rap

Open Cut Route—
- 4940 feet of 24 inch special sewer pipe
- 350 feet of 24 inch RCSP
- 710 feet of 24 inch RCCP
- 550 feet of 24 inch RCCPX
- 5400 cu. yds. of rock
- 1700 cu. yds. of rip-rap

Common to both routes is 1440 feet of 6-inch to 12-inch steel, cast iron and concrete sewers.

Plans and specifications may be obtained from the office of the Chief Engineer of the Commission, Hyattsville, Maryland, upon deposit of $5.00, which deposit will be returned to bidders or to those returning plans and specifications in good condition.

Dwight B. Galt
Warren Browning
Leland G. Worthington
Commissioners

Bids: January 10, 1950 (477)

Overpass

Proposal NO 12,473
Department of Public Finance
Purchasing Division
Room 302 City Hall
New Orleans, Louisiana.

Sealed proposals will be received at this office until the hour of 11 o'clock, January 10, 1950 for furnishing the City of New Orleans, Louisiana with the construction of N Galvez St. overpass, in accordance with specifications on file in the office of the City Purchasing Agent, Room 302 City Hall, New Orleans, La.

Bids will be publicly opened.
Deposit ten per cent of amount of bid.
Cash, certified check or proposal bond enclosed with bid.
Bond 100 per cent of contract price.
Contract before the City Notary at Bidders expense.
The City reserves the right to reject any and all bids.

Lionel G. Ott,
Commissioner of Public Finance.

U. S. Government

U. S. ARMY, CORPS OF ENGINEERS, NEW ENGLAND DIVISION Army Base, Boston 10, Mass. Inv. No. Eng-19-016-50-2. Sealed bids will be received at this office until 2:00 P.M., February 7, 1950, and then publicly opened for Construction of a Veterans Administration Hospital, 1000 bed General Medical, Boston, Massachusetts, in accordance with specifications and plans, copies of which are available at this office. Deposit required of $100.00 per set for blueprints, which will be issued to General Contractors only, $35.00 for half-size reproductions, and $25.00 for specifications, in form of certified check or postal money order payable to "Treasurer of the United States". (481)

(Continued on page 89)

HEADS
you win

TAILS
you win

In other words, how can you lose? When you get the widest possible publicity for your proposed work you can assure yourself of receiving the lowest possible bid consistent with good work. Thus you can do more with the money allotted to a construction job—or have money left over for some other needed work.

Contractors, the country over, check the OFFICIAL PROPOSAL SECTION of ENGINEERING NEWS-RECORD each week in order to make bids on work to be done. For over a half century, Federal, State and Municipal governments have advertised in this Section to secure the lowest possible bids from the highest type of bidder.

The extremely low price of $1.00 per line for advertising in this Section is but a fraction of the savings to be realized through its use.

Official Proposals Section

ENGINEERING NEWS-RECORD

330 W. 42nd St., New York 18, New York

STRUCTURAL STEEL ESTIMATOR

Well known New England fabricating company has an exceptional opening for young experienced structural steel estimator. A real opportunity exists for a man with estimating and sales ability. Give in detail experience, education, etc. References will be required. Replies held strictly confidential.

P-1703, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

POSITION AVAILABLE

Civil Engineering graduate with minimum 12 years' experience to supervise project engineers on building work, waste disposal and structural design. Scheduling experience also desirable. Location in East with established chemical company. Furnish detailed resume of experience and education, also salary requirements, in reply.

P-1420, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

WANTED
BRIDGE DESIGNERS,
DESIGNER DRAFTSMEN, RESIDENT HIGHWAY ENGINEERS, SOILS ENGINEER

Experienced men wanted. State qualifications, age, salary and date available in first letter. Construction period, 24 months. Location, Eastern or Western Pennsylvania.

P-1617, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

REPLIES (Box. No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

SEARCHLIGHT SECTION

"Classified Advertising"

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

UNDISPLAYED RATE

(Not available for equipment advertising)

$1.20 a Line, minimum 4 lines. To figure advance payment count 5 average words as a line.
INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.
Replies are forwarded each day as received at each of the offices mentioned without additional charge.
Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.

DISPLAYED RATE

The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
An advertising inch is measured ⅞ inch vertically on one col., 3 col.—30 inches to a page. E.N.R.

POSITIONS VACANT

MACHINERY SALESMAN—Excellent opportunity with aggressive company. Complete leading lines except tractors. Must be thoroughly experienced. Boehek Engineering Co., Inc., P. O. Box 12187, Houston, Texas.

WANTED CHIEF Draftsman for 500 ton per month structural fabricating plant. Location Northwestern Illinois. State age, experience, resume and salary expected. P-1575, Engineering News-Record.

SANITARY ENGINEER Wanted — Manufacturer of waste treatment equipment with national acceptance requires skilled sanitary engineer for sales promotion work. Sanitary engineering experience, intimate knowledge of treatment processes essential. Must travel. Submit full particulars. P-1494, Engineering News-Record.

WANTED: REGISTERED Civil Engineer, Pennsylvania, Concrete or Construction experience, under forty, for position with future. Salary open. P-1470, Engineering News-Record.

REINFORCING BAR Estimators & Detailers. Location Southeast. Write giving past experience in detail, also salary required. P-1486, Engineering News-Record.

WANTED: INSTRUCTOR or Assistant Professor in Structural Engineering. Professional experience desirable but not required. Salary range $3500 to $4300 for eleven months. Write or call Prof. E. C. Harris, Fenn College, Cleveland 15, Ohio.

OFFICE ENGINEER for land surveyors office. Must be thoroughly experienced in title surveys, subdivision layout and surveys for construction. Location Metropolitan New York. Excellent opportunity for competent man. P-1608, Engineering News-Record.

ARCHITECT CAN associate with one of the oldest firms of architects and engineers, metropolitan area; should know large housing and industrial designing. P-1607, Engineering News-Record.

WANTED: CIVIL Engineer capable of registering in any Southern State, including Florida. Experience on Natural Gas Distribution Systems preferred. Address: Littrell Engin. & Constr. Co., Inc., Moultrie, Georgia.

CONSTRUCTION SUPERINTENDENT for heavy construction with know how and practical experience who can handle work from estimating to completion. In reply give full qualifications and salary experience. P-1568, Engineering News-Record.

STRUCTURAL DETAILER, e...perienced, needed—good opportunity. Address Arkansas Foundry Company, Box 909, Little Rock Arkansas.

REINFORCING BAR Detailers and Estimators. State age, experience, education, and salary desired. Reputable firm located in progressive section of South. P-1763, Engineering News-Record.

WANTED

THREE OUTSTANDING MEN

to plan and supervise the work of design engineers on a $38,000,000 Water System Expansion Program; one registered in Civil, one in Mechanical and one in Architectural Engineering. Salary $6430 to $7147 per year. If you have a proven record of success in design and construction of major water pumping and filtration plants, we would welcome your application.

Supervisory Assistants ($5580 to $6297 per year) and Project Engineers, ($4809 to $5287 per year) in Architectural, Civil, Sanitary, Electrical, Mechanical and Structural Engineering will also be needed.

For information, write immediately to

DETROIT CIVIL SERVICE COMMISSION

15th Floor, Water Board Building **Detroit 26, Michigan**

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (40 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

EMPLOYMENT SERVICES

SALARIED PERSONNEL $3,000-$25,000. This confidential service, established 1927, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

R.P.I. Graduate, Building Construction, January 1950. Engineering, transportation, business background. Overseas experience, knowledge French. Age 28, married. PW-1723, Engineering News-Record.

CONTRACTOR'S ENGINEER, graduate civil, age 30, experience in heavy construction includes estimating, cost engineering, purchasing, and superintendence. Knows costs. Prefer South, other considered. Now employed. Available January 15. Best of reference. PW-1495, Engineering News-Record.

MANAGER—ESTIMATOR—Engineer: 14 yrs. experience, public, industrial, commercial, multiresidential building; and heavy construction on roads, airports, sewers, water lines, reservoirs, marine facilities, railroads, quarry operations. Desires position with gen. contractor, material supplier or mfg., equipment mfr. or dealer. PW-1540, Engineering News-Record.

MECHANICAL ENGINEER—Age 28, experienced in take-off, purchasing, expediting, and field supervision on mechanical and process equipment. Desires position with General Contractor or Mechanical Subcontractor. Midwest location preferred. PW-1555, Engineering News-Record.

WANTED—CIVIL ENGINEER

Experienced in reinforced concrete design, detailing and estimating. Serve as assistant to and understudy for aging chief engineer. Good starting salary, bonus and excellent opportunity for advancement to chief engineer or manager of our engineering products department. All replies confidential.

JOHNSTON-LOUISVILLE BUILDERS SUPPLY CO.
Louisville, Ky.

SALESMAN

Wanted—with established following among general contractors in Metropolitan area. Capable of producing volume business. Lumber experience not essential. Write only, stating age, salary, & past connection. (Confidential).

DORAN LUMBER CORP.
1040 Grand St. Brooklyn, N. Y.

POSITIONS WANTED

STRUCTURAL ENGINEER. Design, estimating. Structural Steel. Fabrication, Erection. Thoro knowledge building construction especially ornamental, miscellaneous iron and metal building products. Excellent sales record. PW-1594, Engineering News-Record.

BRICKLAYERS, PLUMBERS, Carpenters ready to work anywhere. Thoroughly trained by experts. Baltimore Construction Institute Inc., 8 South Paca St., Baltimore, Md.

STRUCTURAL ENGINEER—age 35, 8 years bridge design and details, 1 year structural review. Reg. P. E. Michigan. Prefer midwest. PW-1720, Engineering News-Record.

STRUCTURAL ENGINEER—Seeks position as chief engineer or chief draftsman for steel fabricator or supervisory design engineer for consulting or construction firm. Have thorough knowledge of steel fabricating practice, detailing, estimating, design and sales, experienced on design and supervision of industrial plants, institutional buildings, bridges, steel and concrete structures. PW-1743, Engineering News-Record.

ACCT-OFFICE Mgr., 40, wants responsible job with reliable company. Experienced all phases construction paper work including timekeeping, payroll, purchasing, records, costs, material and equipment records, field office, general office books. PW-1489, Engineering News-Record.

CIVIL ENGINEER AVAILABLE

Graduate Civil Engineer, 41, experienced in highway location and construction; airport construction; design and construction of water transmission lines. 9 years experience in Latin America. Speak Spanish and Portuguese fluently. Available in January.

PW-1773, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

POSITIONS WANTED

A QUARRY Production Manager and Supt.—48 yrs., married, CE degree, 15 yrs. commercial quarry practice. Currently employed directing complete operations of 3000 ton per day limestone quarry, seeks problem quarry—or production or costs with remuneration based on either or both. Contractors holding heavy rock excavation contracts or who plan to produce their own aggregate will find my record and experience of interest. Address PW-1734, Engineering News-Record.

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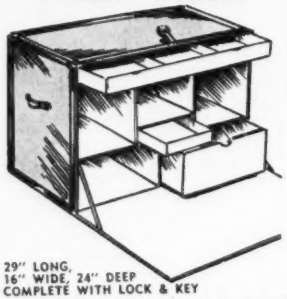

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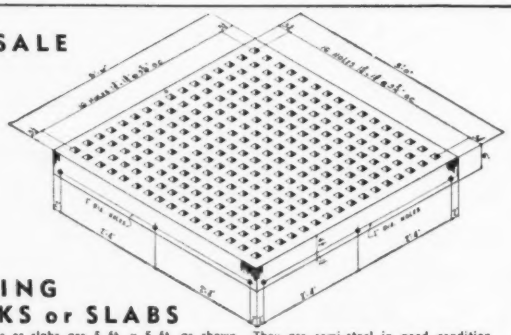

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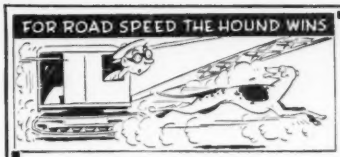

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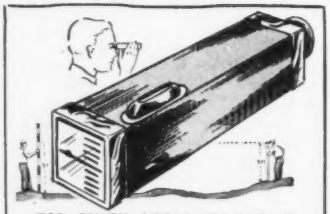

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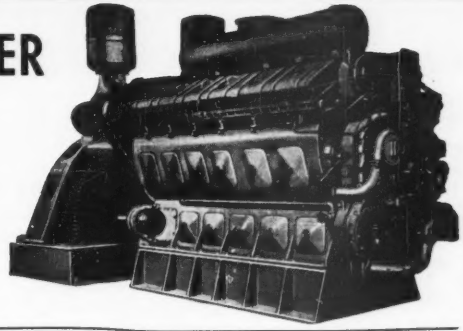

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Benkart Steel & Supply Co..... 94
Berger & Sons, Inc., C. L..... 96
Berkeley Distributors 94
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Borough of Beaver 97
Boyer, Robert H..... 93
Brunson Instrument Co., Inc..... 96
Buff 96

Conserco Co. 95
Conte Equipment Corp..... 90
Contractors Machinery Co..... 93
Contractors Supply Co..... 98
Corbetta Construction Co., Inc..... 90

Darien Corp. 98
Detroit Civil Service Commission..... 89
Doran Lumber Co..... 89

Ehrbar 95
Elkin 93
Elmi Corp. 98
Equipment Corp. of America..... 93

Farrell Contracting Co..... 98
Forsythe Equipment Co., Inc..... 94
Foster Co., L. B..... 98
Frank, M. K..... 98

Glazer Steel Corp..... 92
Greensburg Machine Co 93
Greenspoint Iron & Pipe Co., Inc..... 98
Gurley, W. & L. E 96

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Lewis, Harry C..... 93
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Puerto Rico Water Resources Authority 92

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Sealed Power Corp..... 98
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Smith, Inc., L. B..... 91
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Tamblyn System 90
Thomasville Stone & Lime Co 97
Thompson Co., Inc., J. Parker..... 93
Tractor & Equipment Co..... 96
Tuckahoe Construction Co., Inc..... 94
Tuller Construction Co., The..... 98

Vulcan Iron Works..... 94

W. D. Construction Co..... 94
Walsh Co., Richard P..... 94
Warren-Knight Co. 96
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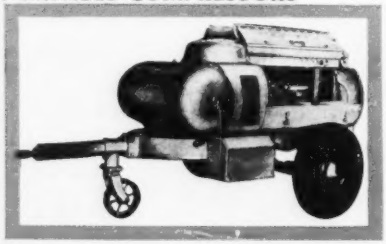

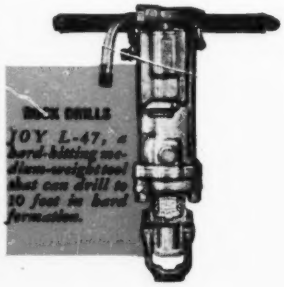

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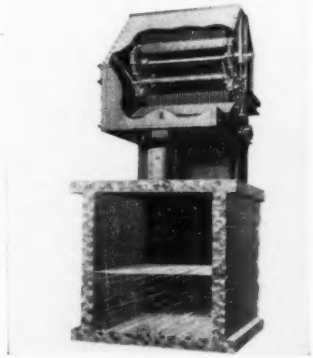
NEW PRODUCTS

Rear-Dump Truck Has a Ten-Ton Payload Capacity

Struck measure of Model UD rear-dump Euclid is 6.6 yd.; payload capacity is 10 tons. Powered by a 125-hp. diesel, the Model UD features planetary drive axle, 10-speed heavy-duty transmission, three-stage double-acting hydraulic hoist, and free-floating spring mounting for front and drive axles. Top speed with capacity payload is 37.5 mph. The Model UD has an approximate gross vehicle weight of 20 tons.—The Euclid Road Machinery Co., Chardon Road, Cleveland 17, Ohio.



Thru-Clean Bar Screen

Designed for the efficient removal of trash and large solids from water and sewage at water, sewage, and industrial-waste treatment plants, the Thru-Clean screen consists of a permanently supported rack of vertical steel screen bars and a power-operated screen-bar-cleaning mechanism employing two endless parallel strands of C-class combination chain between which are fastened two or more steel rakes at evenly spaced intervals. Rake teeth engage the bars through a screen rack from the downstream side, and are moved upwards through the screen bars to the discharge point. Protection in case of jamming is provided by conventional breaking pin, or by a Link-Belt Electrofluid drive. Operation may be automatic by means of a time clock, or manually by push buttons.—Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill.

Snow-Plow Control

Feature of this hydraulic control for snow plows is that it has a pump with its own all-metal clutch, so that the pump operates only when power is needed. A finger-tip control knob raises the plow, holds it in position, or lowers it. Pump is mounted under the hood and operates off the fan belt. —National Truck Equipment Co., 225 Madison St., Dept. SPK-30, Waukesha, Wis.

Burnout-proof Generator

One-piece permanent-magnet rotor coupled with special electrical characteristics is said to result in a burnout-proof generator. Rotor is the only moving part—brushes, slips, rings, and commutator are eliminated. Stator is wound with 5/16-in. copper, silver-soldered at the joints. Armature winding will carry three times normal rated output of the generator. Because the armature is stationary and the rotor is a permanent magnet, the generator is nonsparking. Transformer assembly provides required voltage variations. Unit is gasoline powered.—Midwestern Engine & Equipment Co., 105 N. Boulder, Tulsa, Okla.

Trencher Digs 18-Inch Ditch

Utilizing an endless chain of cast manganese-steel buckets, the Ederer trencher digs an 18-in.-wide ditch to a maximum depth of 55 in. Dirt is dumped by the buckets onto a conveyor which piles it 70 in. from center of cut. Designed for installation on Ford or Ferguson tractor, unit operates from the tractor's power take-off. Separate transmission in its own gear box provides necessary slow speeds for digging.—Ederer Engineering Co., 2931 First Ave., S., Seattle 4, Wash.

Drum Upending Tool

Tool for upending drums and barrels features a special tension-clinching action for positive safety. V-shaped strap-iron saddles are located at the

(*Continued on next page*)

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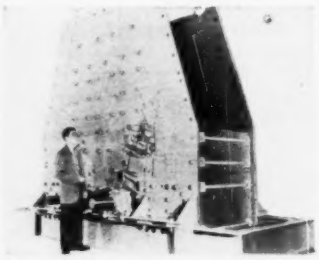
end of the E-Z Up laps over the top expanded rolling hoop, while the lifting saddle fits tightly to the drum head at two points under the rim which supports the lifting weight. The E-Z Up is made of 1-in. tubing, is 42 in. long, and weighs 6 lb.—THE D. S. CAMPBELL CO., 6110 EUCLID AVE., CLEVELAND 3, OHIO.

Loader-Bulldozer Unit

Improved Southwest loader-bulldozer unit offers economy and efficiency for all loader and bulldozer operations. Attachments quickly convert tractor to use in specialized operations such as highway and street maintenance and sand and gravel handling. Conversion takes as little as 30 min. to accomplish.—SOUTHWEST WELDING & MFG. CO., ALHAMBRA, CALIF.



Double-Impeller Breaker

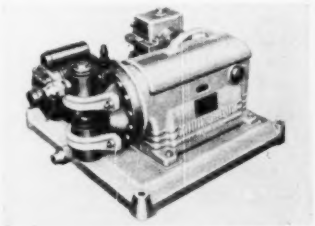
Capacity of the Model 4040 double-impeller breaker is 150 to 250 tons/hr., breaking material up to 2½-in. size. Horsepower required is 150 to 200 (electric) or 220 (diesel). The 4040 is 17 ft. long, 11 ft. 6 in. high, 8 ft. 4 in. wide, and weighs 65,000 lb. The breaker can handle any material passing a 40-in.-square opening. It is V-belt driven with an individual drive to each impeller.—NEW HOLLAND MFG. CO., NEW HOLLAND, PA.

Safety-Warning Device

Safety device sounds a warning when crane or shovel booms swing into the vicinity of power lines or other danger areas. The Electro-Alarm fits any rig, and is doubly protected from internal or external breakdowns and instantly indicates any failure by flashing a red light in front of the operator. It is sensitive to voltages from 110 up, and allows proximity warnings from 4 to 200 ft.—ELECTRO-ALARMS SALES CO., DEPT. 24A, 320 WOW BLDG., OMAHA 2, NEBR.

Pockets for Trencher Teeth

Weld-on pockets reinforce trencher buckets and provide a means of securely and quickly installing Jiffy self-sharpening reversible points. With this equipment, it is possible to replace a complete set of points in 30 min. The pockets are made of a cast-manganese steel. Available in two types to fit every type of trencher.—JIFFY PRODUCTS CO., 3611 PARRY AVE., DALLAS, TEX.



Chemical Proportioning Pump

The Ferro-Feeder, an improved chemical proportioning pump, is said to handle 35 to 40-percent ferric-chloride solutions for sludge conditioning operations. The whipcord-reinforced diaphragm is of soft rubber, the reagent head and check valves are of hard rubber, and durable Hastelloy D is used for metal parts, resulting in high corrosion resistance. Capacity is up to 1 gpm., and feeding rate is adjustable by a variable-speed drive while the unit is operating. Available in simplex and duplex models.—PROPORTIONEERS, INC., PROVIDENCE, R. I.

Detachable Drill Bit

One-use, throwaway drill bit is adaptable to all rock-drilling applications. Made of forged and heat-treated steel, outstanding feature of the Liddicoat bit is the pilot construction which chips the rock ahead of the cross-wings and eliminates pulverizing action. The Type L bit is made for use with all conventional

(*Continued on page 106*)

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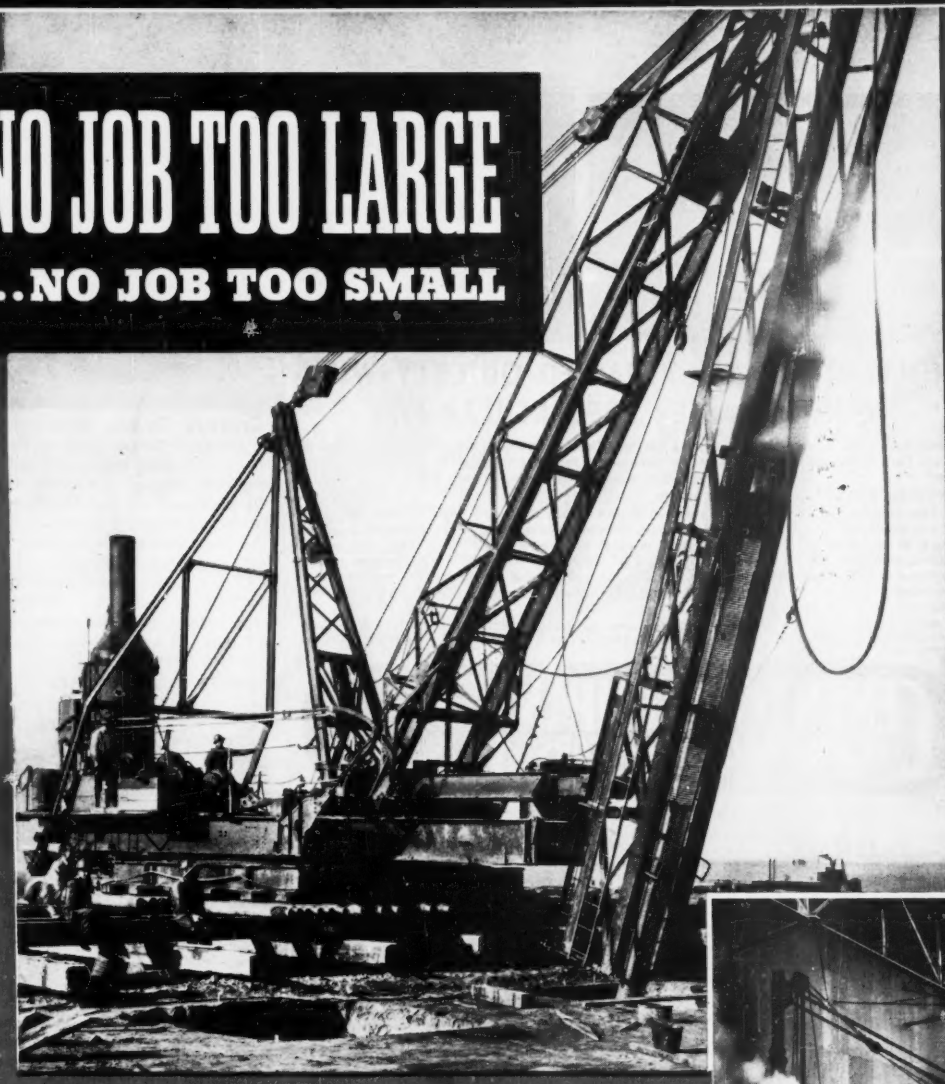
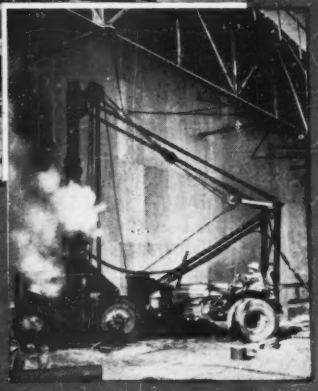
...NO JOB TOO SMALL





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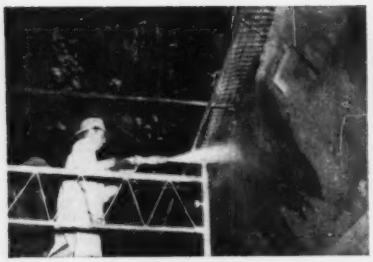

HOLLAND TUNNEL REPAIRED QUICKLY WITH "GUNITE" AFTER SPECTACULAR FIRE

Even before the recent Holland Tunnel fire had been completely extinguished, the Port of New York Authority was at work on the problem of restoring the tube to full usage. Work had to be done as quickly as possible in a manner which would meet the Port Authority's extremely high standards for construction.

The Cement Gun Company was selected to do portions of the job with "Gunite" because of our ability to meet both requirements best. Side walls and ceiling concrete were chipped back to sound material and built out to original lines with "GUNITE". The new metal ceiling was covered on the underside with 1¾" reinforced "GUNITE". Our trained crews outfitted with mobile equipment were on the spot quickly and we completed the job in an amazingly short time, despite the fact that traffic moved through the tunnel during the day and that we could work only at night.

Many instances of repair, remodeling and new construction with "GUNITE" are described and pictured in Bulletin A2400. A request on your letterhead will bring your free copy by return mail.

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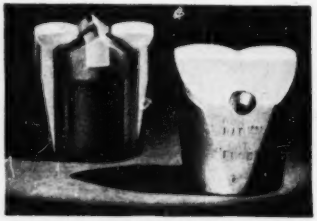
steel sections. Gage sizes are sufficiently varied to assure selection of bits suitable for any rock conditions.—CALUMET & HECLA CONSOLIDATED COPPER CO., CALUMET, MICH.

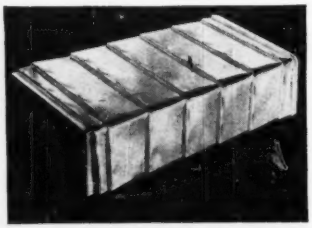


Crowned Carbide Bits

Crowned tungsten-carbide inserts to increase drilling speeds and self-cleaning chip channels are among the features claimed for Rok-Drill bits. Improved blowing has been achieved by the placement of the air holes with a lowering of air consumption. The bits are of the detachable type and are available in these sizes: 2-point chisel type, 1¼ to 4-in. dia.; 4-point cross-bit type, 1⅞ to 4-in. dia.—ROCK BIT SALES & SERVICE CO., 2514 E. CUMBERLAND ST., PHILADELPHIA 25, PA.

Elevating Gooseneck

Folding gooseneck can be raised or lowered to form a loading ramp which provides a uniform incline from the ground to the Carryhaul trailer's platform. An additional feature of this trailer is the tandem-axle assembly which is completely suspended in rubber for flexibility and independent wheel action. This assembly has no grease fittings, requires no lubrication, and has no pins or bushings. Gooseneck is raised to towing position by a power-operated winch on the truck-tractor. Unit will be available in capacities up to 100 tons.—MARTIN MACHINE CO., KEWANEE, ILL.



Copper Flashing for Masonry

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(*Continued on page 109*)

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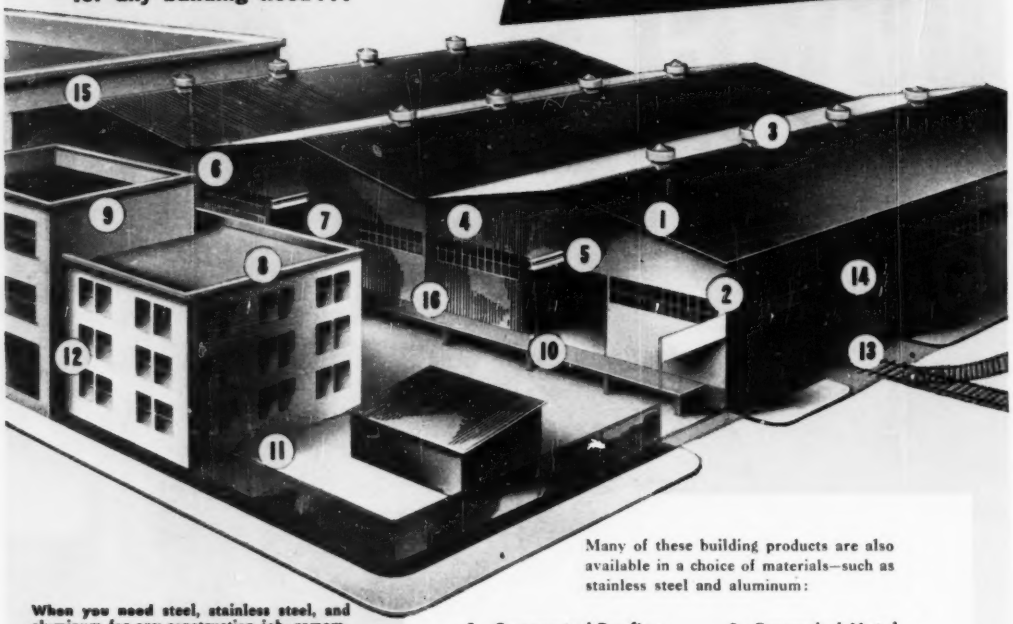

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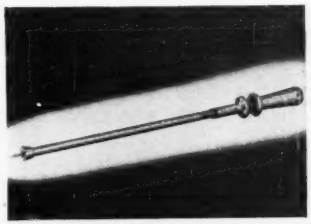
sists of Revere-Keystone Thru Wall flashing, Revere Simplex reglet and reglet insert flashing, and Revere-Keystone vertical rib siding. The Thru Wall flashing provides a positive mechanical bond in every direction in the mortar bed assuring protection against seepage and leaks; does not require soldering at end joints; is economical and easy to install; and may be easily bent. Made from both 10 and 16-oz. copper, the flashing is furnished in sheets of the width required and in standard lengths of 42 in. which allow for a 2-in. overlap. The reglet is formed of 16-oz. copper and furnished in strips 61-in. long (60-in. layup on forms). Strips are attached to concrete forms with special double-headed copper nails driven through pre-punched holes. The insert flashing is formed of 10-oz. copper with $\frac{1}{8}$-in.-high undercut saw tooth ribs spaced 3 in. apart. The vertical rib siding is for weatherproofing parapet walls and penthouses. The ribs permit a locking overlap where joints must be made.—Revere Copper & Brass, Inc., 230 Park Ave., New York 17, N. Y.

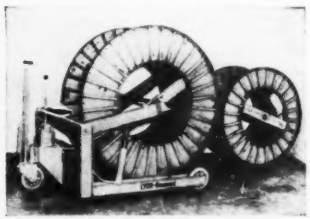
Crane Has 25-Ton Capacity

New, 25-ton-capacity crane is available with two types of carriers. The Model 190-T61 CraneMobile is mounted on a 3-axle crane carrier powered by an automotive-type gasoline engine. The Model 190-CW Crane-Wagon is a self-propelled one-engine crane mounted on a 6-wheel carrier. Crane machinery or upper works of both units is powered by a heavy-duty gasoline engine. Boom is of deep section consisting of basic 30-ft. 2-piece pin-connected sections and intermediate 5, 10, and 20-ft. sections. Boom head is equipped with three ball-bearing-mounted sheaves, as is the load block, permitting use of 2, 4, or 6 parts of line. Adjustable jibs are available in 15 and 30-ft. lengths. The independent precision boom hoist, operated by separate friction clutches, raises and lowers boom and load only under power without use of pawls and brakes. Telescopic boom back-stops provide additional safety when boom reaches maximum operating angle. Special load-lowering mechanism provides accurate control in handling heavy loads instead of relying on foot brake alone. Transmission on the CraneMobile permits speeds up to 35 mph.—Bay City Shovels, Inc., Bay City, Mich.



Magnetic Tube Hammer

Designed to simplify driving nails into inaccessible or hard-to-get-at locations. Nails inserted into the end of the tube are held in place by the magnetized tip of the hammer. A weighted handle then drives the nail which is guided and held in place by the tube. Available in three sizes—(12, 18, and 24-in. lengths), the tool will drive any nail from 6d to 20d sizes.—Tube Hammer Mfg. Co., 1308 E. Colorado St., Pasadena 1, Calif.



Lift Truck for Cable Reels

Cable-reel truck handles reels of various diameters and widths without requiring any adjustment. The lift arrangement incorporates two hydraulic hoists which raise the carrying arms of the truck. A single-speed hydraulic hand pump provides power to elevate the lifting arms. Available in capacities from 2,000 to 10,000 lb.—Lyon-Raymond Corp., 14563 Madison St., Greene, N. Y.

Correction—The October issue of Engineering News-Record stated that the Corrulux translucent building panels would withstand a temperature range from 20 to 250-deg. F. This should have read, from 20-deg. below zero to 250-deg. above.

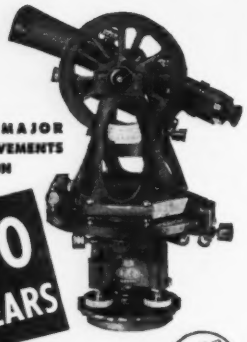
Manufacturers' Publications

Truck, Trailer Size Limits—Laws affecting size and weight of trucks, trailers, and truck-trailer combinations for every state in the union and the District of Columbia are compiled in pocket-size publication. Condensed in quickly understandable form, the booklet tells operators what laws affect him when crossing any state border. Permissible axle loads, length of trailers, overall lengths, number of trailing units, total gross loads, and all other laws affecting truck operation are covered. A thorough research of every state was made in order that recent changes in laws made by the last legislatures would be included. The 23rd reprint of this popular booklet is up-to-date as of November 1, 1949.—The Four Wheel Drive Auto Co., Clintonville, Wis.

Hydraulic Valves—Narrow face-to-face valves (50 lb.), designed particularly for rugged hydraulic service, are described in 12-p. catalog. Also described are various types of valves and controls, and stuffing boxes which include plain, lubricated, lubricated with purge connections, and the rotary seal.—R-S Products Corp., Wayne Junction, Philadelphia 44, Pa.

Flexible Shafts and Grinders—Complete information on flexible shafts and grinders is contained in Catalog 50. Many new-model single and multiple-speed flexible shaft machines are introduced in this catalog. Parts and accessories are illustrated, and explanatory data is presented on details of grinding, sanding, wire brushing, polishing, de-burring, and other operations.—Wyzenbeek & Staff, Inc., 835 W. Hubbard St., Chicago, Ill.

Sewage Treatment—Manual 149 (24 pp.) graphically illustrates and describes processes and equipment for sewage and industrial-waste treatment. Processes listed include activated sludge, bio-activation, jet aeration, mechanical aeration, screening, grit removal, pre-treatment, sedimentation, trickling filters, sewage and sludge pumping, industrial waste treatment and recovery, flow sheets, and installation views. The catalog is arranged for quick, handy, factual reference to enable engineers to determine which processes and units will most effectively answer a specific problem.—The American Well Works, Aurora, Ill.



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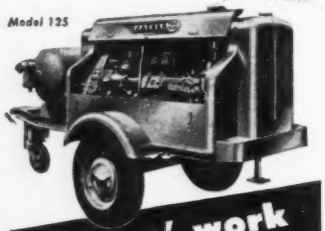

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Atlantic Steel Corp 84
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Barco Mfg. Co 20
Bay City Shovels 106
Belmont Iron Wks 75
Bethlehem Steel Co 55
Boston Woven Hose & Rubber Co 4
Bruning Co., Inc., Charles 52
Brunson Instrument Co., Inc 110
Byers Co., A. M ..... 2nd Cover

Cement Gun Co 106
Chapman Valve Mfg. Co 68
Chicago Pneumatic Tool Co 107
Complete Machinery & Equip. Co 74

Detroit Diesel Engine Div. General Motors Corp 8
Dixie Cup Co 83

Electric Tamper & Equipment Co 53
Eppinger & Russell Co 78
Euclid Road Machinery Co 7

Faber Castell Pencil Co., Inc., A. W 60
Fort Pitt Bridge Wks 15
Four Wheel Drive Auto Co 16

General Excavator Co 54
GMC Truck & Coach Div., General Motors Corp 45
Goodyear Tire & Rubber Co 1
Gordon Smith & Co 56
Griffin Wellpoint Corp 104
Gunite Concrete & Construction Co 84
Gunite Construction Corp 79
Gunite Florida Service, Inc 46

Hayes Track Appliance Co 46
Hayward Co 106
Hendrick Mfg. Co 58
Hudson-Rumsey Co., Inc 66
Hypressure Jenny Div. Homestead Valve Mfg. Co 57

Industrial Brownhoist Brownhoist Corp. 59
Inland Steel Co 18
Irving Subway Grating Co., Inc 74

Jaeger Machine Co 110
Johns-Manville 62, 63
Joy Mfg. Co 102

Kinnear Mfg. Co 5
Kinney Mfg. Co 74
Klemp Co., Wm. F 71

Layne & Bowler, Inc 44
Lehigh Portland Cement Co 64
Lock Joint Pipe Co 14

MacArthur Concrete Pile Corp 59
Macomber, Inc 48
Master Builders Co ..... 3rd Cover
McGraw-Hill Book Co 50
McKiernan-Terry Corp 79
Morin Mfg. Co 2
Mott Core Drilling Co 78

Naylor Pipe Co 12
Northwest Engineering Co 3
Novo Engine Co 70

Ohio Locomotive Crane Co 79
Osgood Co 54
Owen Bucket Co 71

Pennsylvania Drilling Co 75
Plymouth Locomotive Wks 58
Portland Cement Assn 43
Pressure Concrete Co 75

Raymond Concrete Pile Co 105
Rockford Clutch Div. Borg Warner Corp. 75
Rogers Bros. Corp 57
Royal McShea 54
Ryerson & Son, Inc., Joseph T 66

Schramm, Inc 67
Spencer, White & Prentis, Inc 78
Sprague & Henwood, Inc 106
Stang Corp., John W 78

Texas Company ..... 4th Cover
Thew Shovel Co 13
Timken Roller Bearing Co 11
Tinney Drilling Co 70
Torrington Co 61
Truscon Steel Co 73
Twin Disc Clutch Co 80

Underpinning & Foundation Co., Inc 84
U. S. Pipe & Foundry Co 6
U. S. Steel Corp. Subsidiaries 22
U. S. Steel Supply Co 108
Universal Atlas Cement Co 22

Vacuum Concrete, Inc 70
Viber Company 9
Vibro-Plus Products, Inc 104
Vulcan Iron Wks 47

Whitcomb Locomotive Co 51
Williams Co., J. H 70
Wood Co., R. D 77

PROFESSIONAL SERVICES

99, 100, 101

SEARCHLIGHT SECTION

(Classified Advertising)

Employment

Positions Vacant 89
Selling Opportunities Offered 89
Positions Wanted 89-90
Selling Opportunities Wanted 90
Employment Services 89

Educational

Schools 90

Business Opportunities

Offered 90

Notices

Proposals 87-88

Equipment

(Used or Surplus New)
For Rent 94
For Sale 90-98
Piling 98
Pipe 98
Rail 98
Surveying Instruments 96

Wanted

Equipment 98

ADVERTISERS INDEX

101

ENGINEERING NEWS-RECORD

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ROCKMASTER "16" TIMINGS

Rockmaster No.	Avg. Time of Each Delay from Zero (milli-seconds)
0 (zero)	0 (inst.)
1	8
2	25
3	50
4	75
5	100
6	125
7	150
8	175
9	200
10	250
11	300
12	350
13	400
14	450
15	500
16	550

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READER COMMENT

Bricklaying Machine

EDITORS NOTE: Publication in this journal of an account of a new mechanical bricklaying device (Oct. 13 issue, p. 25) has brought numerous inquiries as to performance and operation of the device. The questions posed in the following were asked by Henry A. Wagner of Dumont, N. J., an ENR subscriber of long standing. The answers were supplied by John S. Hodgson, of Hodgson-Sommers, Inc., Montgomery, Ala., manufacturers of the machine.

Q. Are shoved mortar joints (an important factor in waterproofing walls) used, or are the joints grouted by a follow-up crew?
A. The equivalent is provided, assuring full joints.

Q. Has cost of washing down brickwork built by machine been compared with brickwork built by mechanics?
A. We are able to place face brick in the wall without discoloration harmful to the finished wall after ordinary cleaning. The cost of washing down the brickwork is no greater than it is on normal brickwork laid by hand. Only one washing is required.

Q. Brickwork in picture appears to show trowel-struck joint. If so, is this done by another crew?
A. Because of the guides in the machine, joints are recessed when the machine is removed, and some tooling is required for other than raked joints. Our experience has been that the pointing of the joints can be accomplished at the rate of 952 bricks per hour in 8-in. walls. Any delay in tooling is thus more than compensated by the ease with which bricks can be placed. Pointing of the joints can be done either by the operator, or others.

Q. Can the machine be set up to build bonds other than running bond?
A. The machine is designed to provide running bond and headers. Rowlock, Flemish and other bonds require slight—but easily made—adjustments. Thus, it is possible to lay running bond, American bond and English bond without change in the vertical heads.

Q. What happens when brick cuts are needed? Does the machine humor unequal brick that vary in height, width and length?
A. For unequal brick that vary within limits of ASTM specifications, no problem is involved. If the brick sizes vary over these limits, this problem can be overcome by removing the vertical beads and spacing the bricks as a mason would normally do. Variations in height are not of particular concern because the machine levels all brick on its bottom side, instead of at top as a mason does. Any variations are accommodated in the mortar joint above.

Q. Does the machine change the thickness of bed joints and cross joints?
A. To vary the thickness of bed joint, a simple adjustment is possible so that proper coursing can be accomplished. Cross or head joints are varied by removal of the vertical bead.

Q. Has cost been computed over a period of time?
A. Complete costs on various buildings will be available shortly. However, on the construction of the Gospel Tabernacle Church at Prattville, Ala., semi-skilled men placed 3,057 brick (and tooled them) in 12 in. walls (including corners) in eight hours. Labor cost on this job was $5.63 per thousand brick.

One factor I would like to emphasize is that the machine does not supplant the mason, but is intended to assist him in that any jigging process will normally make any work simpler and faster. The development of this machine opens an entirely new field to both construction industry and laymen.

St. Anthony Falls Project

Sir: Reference is made to the article in the 10 November 1949 issue of ENGINEERING NEWS-RECORD on the St. Anthony Falls Project being constructed in Minneapolis under the direction of the Corps of Engineers, Department of the Army.

Early this year, it was expected that construction of the lower dam would be under way during the past summer, and bids were taken for this unit of work. However, the bids received were excessive and all bids were rejected. It is now planned to include both the lower lock and the lower dam in the same contract and to solicit bids on this basis early in 1950.

The general order of construction as shown in the article might indicate that the units of work will be undertaken successively. The plan is, however, that various units of work will be under way at the same time, and the general order of beginning of construction is: (1) lower dredging, (2) lower lock and dam, (3) upper lock, (4) upper dredging, and (5) intermediate dredging.

Work was intended to be started on the upper lock in 1950. However, it now appears that work cannot get under way until 1951.

The river surface will not be raised by the dam and locks, as stated in the article, except between the new lower dam and the existing lower dam, located a few hundred feet upstream. The existing lower dam will be removed.

With reference to the bridges, the article is generally correct except that the lower Northern Pacific Railway, Cedar Avenue, St. Anthony, and Hennepin Avenue bridges will not be altered except that guide fences or streamlining of piers will be required.

There are no power plants being built near the water in the upper harbor vicinity as stated in the article. There are two coal-burning power plants in existence, however, located in the intermediate and upper pool areas.

Mr. Clarence W. Buending is Resident Engineer for the Government, rather than for the contractor, on the lower dredging now in progress. Mr. Tom Goode is superintendent in charge for the contractor.

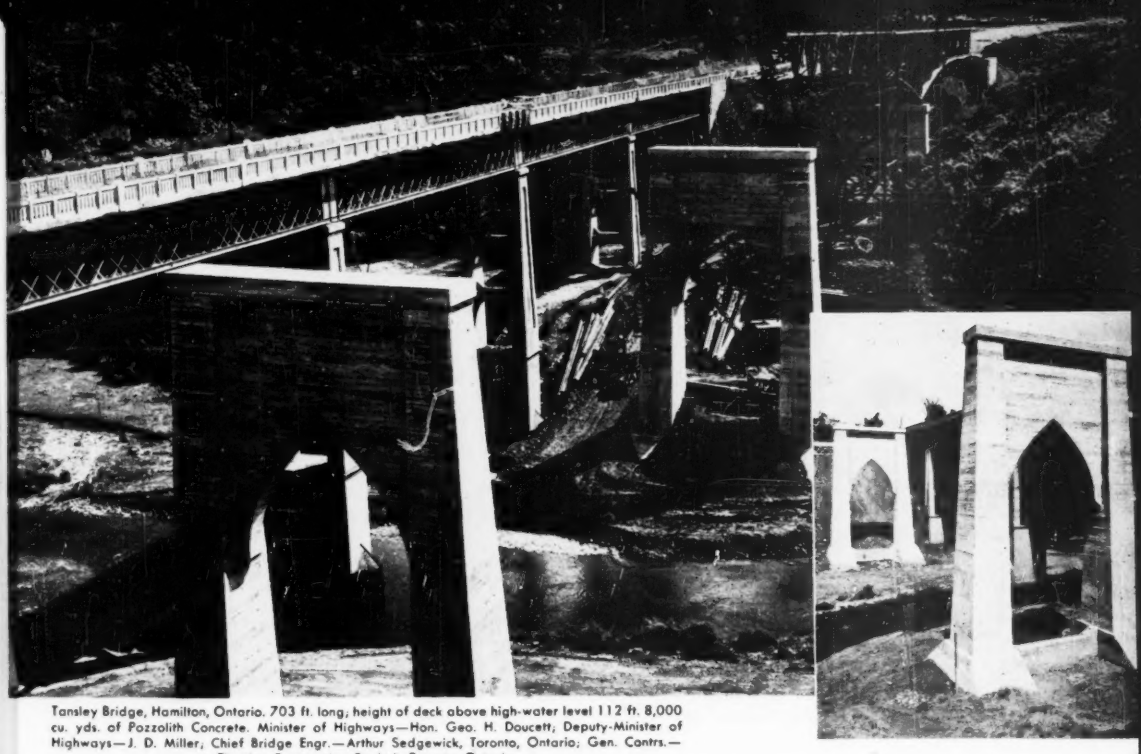
WILLIAM A. ORR
Lt. Colonel, Corps of Engineers
Acting District Engineer
St. Paul District
St. Paul, Minn.

Wage Rates

Sir: We wish to call your attention to an article in the November 3rd issue of the ENGINEERING NEWS-RECORD This article states that the wage rates for our equipment operators have increased 24 to 50 per cent from Stage I to Stage III. It is true that the predetermined rates have increased that amount, but the actual wages paid on Stage III have only increased from 5 to 9 per cent over Stage I rates. Our minimum rate on Stage I was $1.15 per hour with our top rate at $1.90. The $2.10 rate predetermined for Stage III is for a classification of operators that we did not have employed on Stage I work.

We are calling this to your attention and submitting the above information so that you will know the true picture on the wage increases for this project.

L. MCLELLAN
International Union of Operating Engineers
Twin City Local Union No. 2
St. Paul, Minn.



Tansley Bridge, Hamilton, Ontario. 703 ft. long, height of deck above high-water level 112 ft. 8,000 cu. yds. of Pozzolith Concrete. Minister of Highways—Hon. Geo. H. Doucett; Deputy-Minister of Highways—J. D. Miller; Chief Bridge Engr.—Arthur Sedgewick, Toronto, Ontario; Gen. Contrs.—Therrien Construction Co. Ltd., Toronto, Ontario.

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